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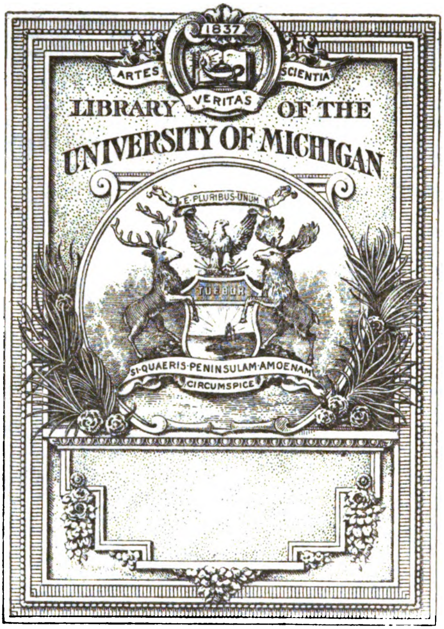

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CALENDAR

OF THE

UNIVERSITY OF MICHIGAN

1837

1909-1910

Ann Arbor
PUBLISHED BY THE UNIVERSITY
1910

DESCRIPTION OF BUILDINGS

The Old Campus contains forty acres and on it are the following buildings:—

UNIVERSITY HALL—Administrative Offices, Auditorium, Recitation Rooms, Laboratories.
LAW BUILDING.
MUSEUM AND GEOLOGICAL LABORATORY.
ALUMNI MEMORIAL HALL.
TAPPAN HALL—Lecture and Recitation Rooms, Mineralogical Laboratory.
PRESIDENT'S HOUSE.
OLD ENGINEERING BUILDING—Recitation Rooms.
PHYSICAL LABORATORY.
NEW ENGINEERING BUILDING — Offices, Recitation Rooms, Engineering Library, Laboratories, Naval Tank.
ENGINEERING SHOPS—Woodwork, Forging, Foundry, Machinery.
HEATING AND LIGHTING PLANT.
MEDICINE AND SURGERY (Old Building).
MEDICINE AND SURGERY (New Building).
GENERAL LIBRARY.
PHYSIOLOGY AND MATERIA MEDICA LABORATORIES, AND ECONOMICS BUILDING.
WATERMAN AND BARBOUR GYMNASIUMS.
HOMOEOPATHIC COLLEGE AND PHYSIOLOGICAL LABORATORY.
CHEMISTRY AND PHARMACY BUILDING.

Across State street to the west are WEST HALL (Recitation Rooms) and NEWBERRY HALL, one of the Students' Christian Association buildings. Situated on land acquired to the northeast of the original grounds are the DENTAL COLLEGE BUILDING and the HOMOEOPATHIC HOSPITAL facing the Campus, and across the valley on hills overlooking the Huron river stand the OBSERVATORY and the UNIVERSITY HOSPITALS. The Arboretum and Garden of ninety acres lies along the Huron, in the same general direction from the Campus. Ferry Field (thirty-five acres, fully equipped for athletics), is five-minutes' walk south of the Campus. The Saginaw Forest Farm of eighty acres is one mile west of the city. The Bogardus Engineering Camp, for summer field work in Engineering and in Biology, comprises over fifteen hundred acres on the shores of Douglass lake in Cheboygan county.

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BIRDS-EYE VIEW OF THE CAMPUS OF THE UNIVERSITY

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ANNOUNCEMENTS

1909–1910 AND 1910–1911

1909.	
June 28-Aug. 20.	Summer Session in the Departments of Literature, Science, and the Arts, of Engineering, of Law, and of Pharmacy.
June 28-Aug. 6.	Summer Session in the Medical Departments.
Oct. 5.	First Semester Begins in all Departments of the University.
Nov. 25.	Holiday, Thanksgiving Day.
Dec. 22.	(Evening) Holiday Vacation begins.
1910.	
Jan. 5.	(Morning) Exercises resumed.
Feb. 11.	(Evening) First Semester Closes.
Feb. 10-12.	*Examinations for Admission to all Departments.*
Feb. 14.	Second Semester Begins.
Feb. 22.	Holiday, Washington's Birthday.
April 8.	(Evening) Recess begins, ending April 19 (evening).
May 30.	Holiday, Memorial Day.
June 26.	*Baccalaureate Address.*
June 27, 28.	*Class Day Exercises in the several Departments.*
June 29.	*Alumni Day.*
June 30.	Commencement. The Commencement Oration is to be delivered by William Herbert Perry Faunce, D.D., LL.D., President of Brown University.
July 5-Aug. 26.	Summer Session in the Departments of Literature, Science, and the Arts, of Engineering, and of Pharmacy.
July 5-Aug. 12.	Summer Session in the Medical Departments.
July 5-Sept. 9.	Summer Session in the Department of Law.
Sept. 27-Oct. 1.	*Examinations for Admission to all Departments of the University.*
Oct. 4.	First Semester Begins in all Departments of the University.
Nov. —.	Holiday, Thanksgiving Day.
Dec. 21.	(Evening) Holiday Vacation begins.
1911.	
Jan. 4.	(Morning) Exercises resumed.
Feb. 10.	(Evening) First Semester Closes.
Feb. 9-11.	*Examinations for Admission to all Departments.*
Feb. 13.	Second Semester Begins.
Feb. 22.	Holiday, Washington's Birthday.
April 7.	(Evening) Recess begins, ending April 17 (evening).
May 30.	Holiday, Memorial Day.
June 29.	Commencement.
July 3.	Summer Session begins in all Departments.
Sept. 26-30.	*Examinations for Admission to all Departments.*
Oct. 3.	First Semester Begins in all Departments.

1909

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Board of Regents

HARRY B. HUTCHINS, LL.D.,
ACTING PRESIDENT.

		Term Expires
HON. FRANK W. FLETCHER,	*Alpena,*	Dec. 31, 1909
HON. HENRY W. CAREY,	*Eastlake,*	" 1909
HON. LOYAL E. KNAPPEN,	*Grand Rapids,*	" 1911
HON. CHASE S. OSBORN,	*Sault Ste. Marie,*	" 1911
*HON. ARTHUR HILL,	*Saginaw,*	" 1913
**HON. JOHN H. GRANT,	*Manistee,*	" 1913
HON. WALTER H. SAWYER,	*Hillsdale,*	" 1913
HON. JUNIUS E. BEAL,	*Ann Arbor,*	" 1915
HON. FRANK B. LELAND,	*Detroit,*	" 1915
HON. WILLIAM L. CLEMENTS,	*Bay City,*	" 1917
HON. GEORGE P. CODD,	*Detroit,*	" 1917

HON. LUTHER L. WRIGHT, *Lansing,*
SUPERINTENDENT OF PUBLIC INSTRUCTION.

SHIRLEY W. SMITH,
SECRETARY OF THE BOARD.

STANDING COMMITTEES

For 1910

Executive

ACTING PRESIDENT HUTCHINS, REGENTS BEAL and SAWYER.

Finance

REGENTS LELAND and SAWYER.

Literary Department, Summer School, Athletics

REGENTS BEAL and OSBORN.

Engineering Department

REGENTS OSBORN and GRANT.

Medical, Dental, and Pharmacy Departments

REGENTS SAWYER and BEAL.

Law Department

REGENTS KNAPPEN and CODD.

Homoeopathic Department

REGENTS GRANT and LELAND.

Library, Museum, and Memorial Hall

REGENTS CODD and CLEMENTS.

Buildings and Grounds

REGENTS CLEMENTS and CODD.

---

*Died December 9, 1909.
**Appointed to fill vacancy.

Members of the Faculties

AND OTHER OFFICERS*

THE UNIVERSITY SENATE

JAMES BURRILL ANGELL, LL.D., President Emeritus.
South University Avenue.

HARRY BURNS HUTCHINS, LL.D., Acting President.
508 Monroe Street. Bell 22.

MARTIN LUTHER D'OOGE, Ph.D., LL.D., D.Litt., *Professor of the Greek Language and Literature.*
1523 Washtenaw Avenue. Bell 492.

ISAAC NEWTON DEMMON, A.M., LL.D., *Professor of English.* 1432 Washtenaw Avenue Bell 888.

MORTIMER ELWYN COOLEY, M.E., LL.D., *Professor of Mechanical Engineering and Dean of the Department of Engineering.* 1405 East Hill Street. Bell 168.

WOOSTER WOODRUFF BEMAN, A.M., LL.D., *Professor of Mathematics.* 813 East Kingsley Street. Bell 725-J.

VICTOR CLARENCE VAUGHAN, M.D., Ph.D., LL.D., *Professor of Hygiene and Physiological Chemistry, and Dean of the Department of Medicine and Surgery.*
221 South State Street. Bell 92.

CHARLES SIMEON DENISON, D.Sc., C.E., *Professor of Stereotomy, Mechanism, and Drawing.* 502 East Huron Street.

HENRY SMITH CARHART, A.M., LL.D., *Professor Emeritus of Physics.* 521 Monroe Street. Bell 286.

RAYMOND CAZALLIS DAVIS, A.M., *Librarian Emeritus and Lecturer on Bibliography.* 521 Church Street. Bell 1401.

HENRY CARTER ADAMS, Ph.D., LL.D., *Professor of Political Economy and Finance.* 1421 Hill Street. Bell 367.

RICHARD HUDSON, A.M., LL.D., *Professor of History.*
1023 Oakland Avenue. Bell 614.

BRADLEY MARTIN THOMPSON, M.S., LL.B., *Jay Professor of Law.* 539 East University Avenue. Bell 136.

---

*The names of Professors (including Librarian), Junior Professors, Assistant Professors, and other officers of instruction are placed in their appropriate divisions, according to term of appointment and length of continuous service with present rank.

ALBERT AUGUSTUS STANLEY, A.M., *Professor of Music.*
810 Oxford Road. Bell 1461.

FRANCIS WILLEY KELSEY, PH.D., *Professor of the Latin Language and Literature.* 826 Tappan Street. Bell 114.

JEROME CYRIL KNOWLTON, A.B., LL.B., *Marshall Professor of Law.* 1429 Hill Street. Bell 831-J.

CHARLES BEYLARD GUERARD DE NANCREDE, A.M., M.D., LL.D., *Professor of Surgery and Clinical Surgery, and Director of Surgical Clinics in the Department of Medicine and Surgery.* 504 South State Street. Bell 89.

OTIS COE JOHNSON, PH.C., A.M., *Professor of Qualitative Analysis.* 730 South Thayer Street. Bell 297-L.

NELVILLE SOULE HOFF, D.D.S., *Professor of Prosthetic Dentistry and Acting Dean of the College of Dental Surgery.*
10 Cutting Apartments. Bell 795-L.

JOSEPH BAKER DAVIS, C.E., *Professor of Geodesy and Surveying, and Director of the Bogardus Engineering Camp.*
731 South Ingalls Street.

WARREN PLIMPTON LOMBARD, A.B., M.D., *Professor of Physiology.* 805 Oxford Road. Bell 730.

JACOB ELLSWORTH REIGHARD, PH.B., *Professor of Zoology and Director of the Zoological Laboratory and the Zoological Museum.* 1502 Israel Avenue. Bell 699-L.

†THOMAS CLARKSON TRUEBLOOD, A.M., *Professor of Oratory.*

JAMES ALEXANDER CRAIG, B.D., PH.D., *Professor of Semitic Languages and Literatures and Hellenistic Greek.*
503 East Madison Street. Bell 789-J.

HARRY BURNS HUTCHINS, PH.B., LL.D., *Professor of Law and Dean of the Department of Law.*
508 Monroe Street. Bell 22.

THOMAS ASHFORD BOGLE, LL.B., *Professor of Law in Charge of the Practice Court.* 1510 Hill Street. Bell 759-J.

WILBERT B. HINSDALE, M.S., A.M., M.D., *Professor of the Theory and Practice of Medicine and Clinical Medicine, Dean of the Homoeopathic Medical College, and Director of the University Hospital (Homoeopathic).*
611 Forest Avenue. Bell and Home 213.

ROBERT MARK WENLEY, D.PHIL., SC.D., LITT.D., LL.D., *Professor of Philosophy.* 509 East Madison Street. Bell 801.

---

†Absent on leave.

WILLIS ALONZO DEWEY, M.D., *Professor of Materia Medica and Therapeutics and Secretary of the Faculty in the Homoeopathic Medical College.*
809 East Catherine Street. Bell 585.

VICTOR HUGO LANE, C.E., LL.B., *Fletcher Professor of Law and Law Librarian.*
715 Forest Avenue. Bell 526-J; Home 433 Black.

JAMES HENRY BREWSTER, Ph.B., LL.B., *Professor of Law.*
1705 Washtenaw Avenue. Bell 1019-L.

HORACE LAFAYETTE WILGUS, M.S., *Professor of Law.*
1547 Washtenaw Avenue. Bell 651; Home 348 Black.

CLAUDIUS BLIGH KINYON, M.D., *Professor of Obstetrics and Gynecology in the Homoeopathic Medical College.*
914 Hill Street. Bell 36; Home 36.

ARTHUR GRAVES CANFIELD, A.M., *Professor of the Romance Languages and Literatures.*
909 East University Avenue. Bell 781-J; Home 385 White.

REUBEN PETERSON, A.B., M.D., *Bates Professor of the Diseases of Women and Children in the Department of Medicine and Surgery.* 1416 Hill Street. Bell 285; Home 285.

DEAN TYLER SMITH, B.S., M.D., *Professor of Surgery and Clinical Surgery in the Homoeopathic Medical College.*
712 East Washington Street. Bell 116; Home 116.

ROBERT EMMET BUNKER, A.M., LL.B., *Professor of Law.*
904 Olivia Avenue. Bell 507.

FRED NEWTON SCOTT, Ph.D., *Professor of Rhetoric.*
1351 Washtenaw Avenue. Bell 409-J.

MAX WINKLER, Ph.D., *Professor of the Germanic Languages and Literatures.*
920 Oakland Avenue. Bell 1205-L; Home 182 Red.

FREDERICK GEORGE NOVY, M.D., Sc.D., *Professor of Bacteriology and Director of the Hygienic Laboratory.*
721 Forest Avenue. Bell 526-L.

EDWARD DeMILLE CAMPBELL, B.S., *Professor of Chemical Engineering and Analytical Chemistry and Director of the Chemical Laboratory.* 1555 Washtenaw Avenue. Bell 622.

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18 Cutting Apartments. Bell 1041-L.

HERMANN KIEFER, M.D., *Professor Emeritus of the Practice of Medicine in the Department of Medicine and Surgery.*
Detroit.

FILIBERT ROTH, B.S., *Professor of Forestry.*
730 South State Street. Bell 673.

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1020 Ferdon Road. Bell 752; Home 36.

LOUIS PHILLIPS HALL, D.D.S., *Professor of Operative and Clinical Dentistry.* 1530 Hill Street. Bell 550-J.

EGBERT THEODORE LOEFFLER, B.S., D.D.S., *Professor of Dental Therapeutics.* 705 South State Street. Bell 949.

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ALEXANDER ZIWET, C.E., *Professor of Mathematics.*
644 South Ingalls Street. Bell 744; Home 437 White.

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705 South State Street. Bell 352-J.

KEENE FITZPATRICK, *Professor of Physical Training and Director of the Waterman Gymnasium.*
719 East University Avenue. Home 692.

GARDNER STEWART WILLIAMS, C.E., *Professor of Civil, Hydraulic, and Sanitary Engineering.*
1503 Washtenaw Avenue. Bell 883.

MOSES GOMBERG, Sc.D., *Professor of Organic Chemistry.*
725 Oxford Road. Bell 1426.

GEORGE WASHINGTON PATTERSON, PH.D., *Professor of Electrical Engineering.* 814 South University Avenue. Bell 516.

FREDERICK CHARLES NEWCOMBE, PH.D., *Professor of Botany and Director of the Botanical Laboratory.*
1817 Geddes Avenue. Bell 766.

JOHN OREN REED, PH.D., *Professor of Physics, Director of the Physical Laboratory, and Dean of the Department of Literature, Science, and the Arts.*
907 Lincoln Avenue. Bell 462-L.

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1809 Hill Street. Bell 742-J.

WALTER ROBERT PARKER, B.S., M.D., *Professor of Ophthalmology in the Department of Medicine and Surgery.*
311 South State Street. Bell 972.

ROY BISHOP CANFIELD, A.B., M.D., *Professor of Otolaryngology in the Department of Medicine and Surgery.*
300 South State Street. Bell 511.

WILLIAM FLEMING BREAKEY, M.D., *Professor of Dermatology and Syphilology.* 402 East Huron Street. Bell 29.

WILLIAM JOSEPH HUSSEY, B.S., *Professor of Astronomy and Director of the Observatory.*
1308 East Ann Street. Bell, Campus 12.

EMIL LORCH, A.M., *Professor of Architecture.*
841 East University Avenue. Bell 581.

CLAUDE HALSTEAD VAN TYNE, PH.D., *Professor of American History.* 717 New Jersey Avenue. Bell 897-J.

JOSEPH HORACE DRAKE, LL.B., PH.D., *Professor of Law.*
903 Lincoln Avenue. Bell 831-L.

JOHN ROMAIN ROOD, LL.B.. *Professor of Law.*
1014 Church Street. Bell 1094-J; Home 391 Blue.

EDSON READ SUNDERLAND, LL.B., A.M., *Professor of Law.* 1029 Vaughn Street. Bell 1255-L.

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WILLIAM HERBERT HOBBS, PH.D., *Professor of Geology and Director of the Geological Laboratory and Geological Museum.* 820 Oxford Road. Bell 1425.

CHARLES WALLIS EDMUNDS, A.B., M.D., *Professor of Therapeutics and Materia Medica in the Department of Medicine and Surgery.* 928 Olivia Avenue. Bell 412-J.

ALFRED HENRY LLOYD, PH.D., *Professor of Philosophy.*
1735 Washtenaw Avenue. Bell 256-2r.

†MORITZ LEVI, A.B., *Professor of French.*

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†Absent on leave.

JOHN ROBINS ALLEN, M.E., *Professor of Mechanical Engineering.* 226 South Ingalls Street. Bell 1017-J.

JOSEPH LYBRAND MARKLEY, PH.D., *Professor of Mathematics.* Geddes Avenue and Oxford Road. Bell 409-L.

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DEAN WENTWORTH MYERS, M.D., *Professor of Ophthalmology, Otology, Rhinology, and Laryngology in the Homoeopathic Medical College.* 901 Forest Avenue. Bell 1341; Home 1341.

S. LAWRENCE BIGELOW, PH.D., *Professor of General and Physical Chemistry.* 1520 Hill Street. Bell 629.

GEORGE LINIUS STREETER, A.M., M.D., *Professor of Anatomy, and Director of the Anatomical Laboratory.* 620 South State Street. Bell 618-J.

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†Absent on leave.

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WILLIAM HENRY BUTTS, PH.D., *Junior Professor of Mathematics and Assistant Dean of the Department of Engineering.* 919 Oakland Avenue. Bell 636-J; Home 773 Red.

IRA DEAN LOREE, M.D., *Clinical Professor of Genito-Urinary Surgery in the Department of Medicine and Surgery.* 122 North Thayer Street. Bell 456.

JONATHAN AUGUSTUS CHARLES HILDNER, PH.D., *Junior Professor of German.* 1026 Greenwood Avenue. Bell 1451.

CHARLES JOSEPH TILDEN, B.S., *Junior Professor of Civil Engineering.* 1619 Israel Avenue. Bell 892-J.

HUGO PAUL THIEME, PH.D., *Junior Professor of French.* 735 South Twelfth Street. Bell 630-L.

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BENJAMIN FRANKLIN BAILEY, PH.D., *Junior Professor of Electrical Engineering.* 923 Greenwood Avenue. Bell 1162-J.

ERMINE COWLES CASE, M.S., PH.D., *Junior Professor of Historical Geology and Paleontology.* 1609 South University Avenue. Home 252 Blue.

CHARLES HUGHES JOHNSTON, PH.D., *Junior Professor of Education.* 749 East University Avenue. Bell 1492.

CLARENCE LINTON MEADER, PH.D., *Assistant Professor of Latin, Sanskrit, and General Linguistics.* 724 East University Avenue. Home 342 White.

†CALVIN OLIN DAVIS, A.M., *Assistant Professor of Education and Inspector of Schools.*

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†Absent on leave.

JAMES BARKLEY POLLOCK, Sc.D., *Assistant Professor of Botany.* 922 Church Street. Bell 1520-J; Home 285 Blue.

EWALD AUGUSTUS BOUCKE, Ph.D., *Assistant Professor of German.* 901 Oakland Avenue. Bell 657-J.

HOWARD B. MERRICK, B.S., *Assistant Professor of Surveying.* 928 Church Street. Bell 30-J.

MYRA BEACH JORDAN, A.B., *Dean of Women in the Department of Literature, Science, and the Arts.* 923 Olivia Avenue. Bell 724.

MORRIS PALMER TILLEY, Ph.D., *Assistant Professor of English.* 924 Baldwin Avenue. Bell 462-J.

GEORGE PLUMER BURNS, Ph.D., *Assistant Professor of Botany and Director of the Botanical Garden and Arboretum.* 605 Oxford Road. Bell 1327-J; Home 199.

HARRISON STANDISH SMALLEY, Ph.D., *Assistant Professor of Political Economy.* 5 Cutting Apartments. Bell 1172-J.

THOMAS ERNEST RANKIN, A.M., *Assistant Professor of Rhetoric.* 605 Oswego Street. Bell 1327-L.

DAVID MARTIN LICHTY, Ph.D., *Assistant Professor of General Chemistry.* 922 Olivia Avenue. Bell 641-L.

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ARTHUR WHITMORE SMITH, Ph.D., *Assistant Professor of Physics.* 1008 Oakland Avenue. Bell 549-J.

ARCHIE BURTON PIERCE, Ph.D., *Assistant Professor of Civil Engineering.* 1339 Washtenaw Avenue. Bell 1503-L.

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PETER FIELD, Ph.D., *Assistant Professor of Mathematics.* 935 Greenwood Avenue. Bell 1469-J.

EDWARD MILTON BRAGG, B.S., *Assistant Professor of Marine Engineering and Naval Architecture.* 851 Tappan Street. Bell 689-J.

CHARLES PHILIP WAGNER, Ph.D., *Assistant Professor of Romance Languages.* 1021 East University Avenue. Home 123 White.

WILLIAM D. HENDERSON, Ph.D., *Assistant Professor of Physics.* 1001 Forest Avenue. Bell 271-J.

WALTER BURTON FORD, Ph.D., *Assistant Professor of Mathematics.* 1345 Wilmot Street. Bell 1279-J.

EVANS HOLBROOK, A.B., LL.B., *Assistant Professor of Law.*
1320 South University Avenue. Bell 1190-L; Home 485 White.

RALPH HAMILTON CURTISS, PH.D., *Assistant Professor of Astro-Physics.* 1304 Geddes Avenue. Bell 524-J.

ALFRED HENDERSON KNIGHT, M.M.E., *Assistant Professor of Mechanical Engineering.*
837 East University Avenue. Bell 1518-L.

JOHN HOWELL GRIFFITH, M.S., *Assistant Professor of Civil Engineering.* 928 Oakland Avenue. Bell 1340-L.

OTTO CHARLES GLASER, PH.D., *Assistant Professor of Zoology.* 1985 Geddes Avenue. Bell 773-L.

CARL EDGAR EGGERT, PH.D., *Assistant Professor of German.*
930 Church Street. Bell 5-J.

WILLIAM JAY HALE, PH.D., *Assistant Professor of Chemistry.* 633 Church Street. Bell 1029-L.

CHARLES ALTON ELLIS, A.B., *Assistant Professor of Civil Engineering.* 916 Church Street. Bell 147-4r.

EDWARD DUNBAR RICH, C.E., *Assistant Professor of Civil Engineering.* 929 Church Street. Bell 1493-J.

JAMES AMBROSE MOYER, A.M., *Assistant Professor of Mechanical Engineering.* 1232 Washtenaw Avenue. Bell 307-L.

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LEWIS HENRY HANEY, PH.D., *Assistant Professor of Political Economy.* 1208 Prospect Street. Bell 1406-J.

JAMES PYPER BIRD, A.B., *Assistant Professor of French and Spanish, and Secretary of the Engineering Faculty.*
711 South Twelfth Street. Home 24 White.

JOSEPH ALDRICH BURSLEY, B.S., *Assistant Professor of Mechanical Engineering.* 815 Forest Avenue. Bell 1141-J.

HENRY HAROLD HIGBIE, E.E., *Assistant Professor of Electrical Engineering.*
1109 East University Avenue. Bell 1423-J.

GEORGE AUGUSTUS MAY, M.D., *Assistant Professor of Physical Training and Physical Examiner in the Waterman Gymnasium.* 211 East Huron Street. Bell 434-J.

JOHN WILLIAM BRADSHAW, PH.D., *Assistant Professor of Mathematics.* 1234 Prospect Street. Bell 1537-J.

CLAUDE ADELBERT BURRETT, Ph.B., M.D., *Assistant Professor of Dermatology and Genito-Urinary Diseases, and Registrar of the Homoeopathic Medical College.*
549 Packard Street. Bell 1257-L; Home 757 Red.

RALZEMOND DRAKE PARKER, M.S., *Assistant Professor of Electrical Engineering.* 516 Walnut Street. Bell 807-J.

STANISLAUS JAN ZOWSKI (ZWIERZCHOWSKI), Dipl. Ing., *Assistant Professor of Mechanical Engineering.*
1523 South University Avenue. Home 154.

CARY LeROY HILL, A.B., M.S.F., *Assistant Professor of Forestry.* 327 East Huron Street. Bell 360-J.

RICHARD DENNIS TEALL HOLLISTER, A.M., *Acting Assistant Professor of Oratory.* 619 Whaley Court. Bell 1449-L.

CARL VERNON TOWER, Ph.D., *Acting Assistant Professor of Philosophy.* 549 South Division Street.

OTHER OFFICERS OF INSTRUCTION

Instructors Appointed for Three Years

ALBERT ROBINSON CRITTENDEN, Ph.D., *Instructor in Latin.* 1031 Forest Avenue. Bell 1542-J.

EDWARD BRIND ESCOTT, M.S., *Instructor in Mathematics.*
1825 Hill Street. Home 617 White.

†LOUIS CHARLES KARPINSKI, Ph.D., *Instructor in Mathematics.*

JOHN DIETERLE, B.D., A.M., *Instructor in German.*
221 West Liberty Street. Bell 1307-L.

WILLIAM GABB SMEATON, A.B., *Instructor in General Chemistry.* 1114 Prospect Street. Bell 1456.

GEORGE MILLER BARTLETT, B.S.. A.M., *Instructor in Descriptive Geometry and Drawing.*
1321 Wilmot Street. Bell 1194-J.

JOHN WILLIAM SCHOLL, Ph.D., *Instructor in German.*
917 Forest Avenue. Home 224 Blue.

WILLIAM EDWARD BOHN, Ph.D., *Instructor in Rhetoric.*
634 South Twelfth Street. Bell 1235-J.

GEORGE LIVINGSTONE HAMILTON, Ph.D., *Instructor in French.* 711 Monroe Street.

ALICE LOUISE HUNT, *Instructor in Drawing.*
524 Church Street. Bell 1160-J.

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†Absent on leave.

EDWARD LARRABEE ADAMS, PH.D., *Instructor in Romance Languages.*
644 South Ingalls Street. Bell 744; Home 437 White.

HAROLD PRELL BREITENBACH, PH.D., *Instructor in Rhetoric.* 1427 Israel Avenue.

LEE HOLT CONE, PH.D., *Instructor in Organic Chemistry.*
1216 Prospect Street. Bell 1406-L.

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407 East University Avenue. Bell 1576.

JOHN GARRETT WINTER, PH.D., *Instructor in Greek.*
1414 Washtenaw Avenue. Bell 670.

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952 Greenwood Avenue. Bell 1512-J.

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802 Oakland Avenue. Bell 786-2r.

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1714 Wells Street. Bell 1537-L.

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910 Greenwood Avenue. Home 694 Black.

NEIL HOOKER WILLIAMS, M.S., *Instructor in Physics*
1228 Prospect Street. Bell 1450-L.

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1208 Willard Street. Bell 1343-L.

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1112 Washtenaw Avenue. Bell 710-J.

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1613 South University Avenue. Bell 925-J.

ELMER LEROY WHITMAN, D.D.S., *Instructor in Prosthetic Technics.* 1344 Wilmot Street. Bell 1063-L.

CALVIN HENRY KAUFFMAN, PH.D., *Instructor in Botany.*
1020 Michigan Avenue. Home 124 Black.

†ROY WOOD SELLARS, PH.D., *Instructor in Philosophy.*

---

†Absent on leave.

†HARRY CONRAD THURNAU, PH.D., *Instructor in German.*

HERBERT ALDEN KENYON, A.M., *Instructor in French and Spanish.*
1209 East University Avenue. Bell 1227-L; Home 124 Red.

HOBART HURD WILLARD, PH.D., *Instructor in Qualitative Analysis.* 802 Monroe Street. Bell 1114-J; Home 471.

WILLIAM ALOYSIUS McLAUGHLIN, A.B., *Instructor in French.* 920 Monroe Street. Bell 312-J.

†KARL WILHELMJ ZIMMERSCHIED, M.S., *Instructor in Metallurgy and Quantitative Analysis.*

HARRY HURD ATWELL, B.S., *Instructor in Surveying.*
732 Packard Street. Home 598 Red.

SAMUEL COLVILLE LIND, PH.D., *Instructor in General and Physical Chemistry.* 1008 Hill Street. Bell 530; Home 756 Red.

CHARLES BRUCE VIBBERT, A.B., *Instructor in Philosophy.*
1008 Hill Street. Bell 530. Home 756 Red.

CLYDE ELTON LOVE, A.M., *Instructor in Mathematics.*
1527 South University Avenue. Home 299 Black.

†WILLIAM VAN NEST GARRETSON, M.S., *Instructor in Mathematics.*

JOHN R. BRUMM, A.M., *Instructor in Rhetoric.*
609 Hill Street. Bell 990-L.

JAMES LESLIE FRENCH, B.D., PH.D., *Instructor in Semitics.*
602 East Huron Street. Bell 1212-J.

HENRY PRIME NOBLE, PH.B., *Instructor in Machine Design, and Assistant to the Superintendent of Shops.*
912 Forest Avenue. Home 945 Red.

OTTO CHARLES MARCKWARDT, A.M., *Instructor in Rhetoric* 513 Elm Street. Bell 807-L.

LOUIS ALLEN HOPKINS, M.S., *Instructor in Mathematics.*
914 Lincoln Avenue. Bell 1011-J.

ALEXANDER GRANT RUTHVEN, PH.D., *Instructor in Zoology and Curator of the Museum.*
1110 Oakland Avenue. Home 385 Red.

HERBERT HUTCHINSON HARPER, D.D.S., *Instructor in Clinical Dentistry.* Ypsilanti. Bell 204; Home 204-2r.

FRANK RICHARD FINCH, PH.B., *Instructor in Descriptive Geometry and Drawing.*
1619 South University Avenue. Bell 1288-J.

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†Absent on leave.

†GEORGE G. STROEBE, PH.B., B.S., *Instructor in Civil Engineering.*

WILLIAM FREDERIC HAUHART, A.M., *Instructor in German.* 407 East University Avenue. Bell 1576.

FREDERICK WILLIAM WECK, A.M., *Instructor in German.* 616 Church Street. Bell 1238-L.

CARL JOHN WIGGERS, M.D., *Instructor in Physiology.* 619 Church Street. Bell 1029-J.

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LEE MILTON HOLLANDER, PH.D., *Instructor in German.* 604 Forest Avenue. Bell 1238-J.

EARLE GRENVILLE KILLEEN, *Instructor in Music.* 1016 East University Avenue. Bell 1487.

ROBERT JOHN CARNEY, A.B., *Instructor in Analytical Chemistry.* 720 Whaley Court. Bell 1449-J.

HARRY NEWTON COLE, A.B., B.S., *Instructor in Analytical Chemistry.* 702 Forest Avenue. Bell 1256-L.

MARSHALL LAWRENCE CUSHMAN, M.D., *Instructor in Oto-Laryngology in the Department of Medicine and Surgery.* 906 East Huron Street. Bell 854-2r.

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†Absent on leave.

WILBER RAY HUMPHREYS, A.M., *Instructor in English.*
1012 Michigan Avenue. Bell 579-J.

WILLIAM HOYT WORRELL, PH.D., *Instructor in Semitics.*
1213 Willard Street. Bell 1507-L.

JAMES GERRIT VAN ZWALUWENBURG, B.S., M.D., *Instructor in Internal Medicine and Demonstrator of Clinical Medicine in the Department of Medicine and Surgery.*
319 Glen Avenue. Bell 1122-J.

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DAVID FRIDAY, A.B., *Instructor in Political Economy.*
1349 Wilmot Street. Bell 1279-L.

WILLIAM BEVERLEY STONE, PH.D., *Instructor in Mathematics.* 749 East University Avenue. Bell 1492.

ALFRED OUGHTON LEE, PH.D., *Instructor in German.*
1008 Hill Street. Bell 530.

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CLIFTON O'NEAL CAREY, B.S., *Instructor in Surveying.*
1443 Washtenaw Avenue. Bell 1020-J.

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802 Oakland Avenue. Bell 786-2r.

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724 South Ingalls Street. Bell 1200-J.

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CHARLES HORACE FESSENDEN, M.E., *Instructor in Mechanical Engineering.* 802 Monroe Street. Bell 1114-J.

WILLIAM FRANK VERNER, B.S., *Instructor in Descriptive Geometry and Drawing.*
1317 South University Avenue. Bell 1190-J.

HENRI THEODORE ANTOINE DE LENG HUS, PH.D., *Instructor in Botany.* 603 Monroe Street. Bell 1203-J.

HERBERT SAMUEL MALLORY, PH.D., *Instructor in Rhetoric.* 908 Oakland Avenue. Bell 745.

FRANK GEROW TOMPKINS, A.B., *Instructor in Rhetoric.* 602 Monroe Street. Bell 799.

ARTHUR SPERRY PEARSE, PH.D., *Instructor in Zoology.* 1926 Geddes Avenue. Bell 1288-L.

ROBERT WILHELM HEGNER, PH.D., *Instructor in Zoology.* 1201 East University Avenue.

LOREN WALLACE McOMBER, B.S., *Instructor in Electrical Engineering.* 407 East University Avenue. Bell 1576.

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WILLIAM ROBERTSON McDONALD, *Foreman in Forge Shop.* 1114 East University Avenue.

HENRY MANN COBB, *Foreman in Machine Shop.* 524 Hill Street.

GEORGE GARFIELD BULL, *Foreman in Foundry.* 1109 Broadway.

WILLIAM HENRY YEATMAN, *Foreman in Wood Shop.* 407 East Cross Street, Ypsilanti.

JOHN HUBER STEVENSON, *Instrument Maker.* 1117 West Huron Street.

ALONZO SIMMONS BERRY, *Assistant in Wood Shop.* 929 Olivia Avenue.

EMORY MORRIS SWEET, *Assistant in Machine Shop.* 302 South State Street.

ARTHUR CHARLES WARREN, *Assistant in Wood Shop.*
561 South Ashley Street.

ANDREW NEFF, *Assistant in Forge Shop.* 525 Second Street.

HERMAN L. ASCHER, *Assistant in Machine Shop.*
1103 East Huron Street.

GEORGE WILBUR SAVAGE, *Assistant in Forge Shop.*
518 Packard Street.

HARRY CHALMERS TURNER, *Clerk in Superintendent's Office.* 745 Packard Street.

Buildings and Grounds

THOMAS B. TURNBULL, *Superintendent.*
600 Spring Street. Bell 1014-J.

HAMILTON REEVE, *Assistant Superintendent.* 814 Church Street.

JAMES H. MARKS, *Constructing Architect.* 1118 East Ann Street.

THOMAS HOPWOOD, *Chief Engineer.*
830 East University Avenue.

EDWIN C. BURDICK, *Chief Electrician.*
1139 Michigan Avenue. Home 215 Blue.

J. GEORGE LUTZ, *Chief Painter.* 747 Packard Street. Bell 908-L.

Board in Control of Athletics

PROFESSORS A. S. WHITNEY, KEENE FITZPATRICK, G. W. PATTERSON, CHAIRMAN; D. W. MYERS, and EVANS HOLBROOK; GRADUATE MEMBER, HENRY E. BODMAN; UNDERGRADUATE MEMBERS HENRY A. BUNDSCHU and RALPH T. SAYLES.

University of Michigan

THE UNIVERSITY AND THE STATE

THE University of Michigan is a part of the public educational system of the State. The governing body of the institution is a Board of Regents, elected by popular vote for terms of eight years, as provided in the Constitution of the State. In accordance with the laws of the State, the University aims to complete and crown the work that is begun in the public schools by furnishing ample facilities for liberal education in literature, science, and the arts, and for thorough professional study of engineering, medicine, law, pharmacy, and dentistry. Through the aid that has been received from the United States and from the State, it is enabled to offer its privileges, with only moderate charges, to all persons of either sex, who are qualified for admission. While Michigan has endowed her University primarily for the higher education of her own sons and daughters, it must be understood that she also opens the doors of the institution to all students wherever their homes. It is in this broad, generous, and hospitable spirit that the University has been founded, and that it endeavors to do its work.

The University comprises the following departments:—

I. THE DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS (including THE GRADUATE SCHOOL).
II. THE DEPARTMENT OF ENGINEERING.
III. THE DEPARTMENT OF MEDICINE AND SURGERY.
IV. THE DEPARTMENT OF LAW.
V. THE SCHOOL OF PHARMACY.
VI. THE HOMOEOPATHIC MEDICAL COLLEGE.
VII. THE COLLEGE OF DENTAL SURGERY.

In a Summer Session regular courses of instruction are given in the Department of Literature, Science, and the Arts, the Department of Engineering, the Department of Medicine and Surgery, the Department of Law, the School of Pharmacy, and the Homœopathic Medical College.

On the completion of prescribed courses of study degrees are conferred by the University as follows: In the Department of Literature, Science, and the Arts, the degrees of Bachelor of Arts, Bachelor of Science, Master of Arts, Master of Science, Master in Landscape Design, Doctor of Philosophy, and Doctor of Science; in the Department of Engineering, the degrees of Bachelor of Science (in Civil, Mechanical, Electrical, Chemical, Marine, and Architectural Engineering, and in Naval Architecture and Architecture), Master of Science, Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer, Marine Engineer, and Naval Architect; in the Department of Medicine and Surgery, the degree of Doctor of Medicine; in the Department of Law, the degrees of Bachelor of Laws, Juris Doctor, and Master of Laws; in the School of Pharmacy, the degrees of Pharmaceutical Chemist, Bachelor of Science (in Pharmacy), and Master of Science (in Pharmacy); in the Homœopathic Medical College, the degree of Doctor of Medicine; in the College of Dental Surgery, the degrees of Doctor of Dental Surgery and Doctor of Dental Science.

Students in any department of the University may enter the classes in any other department, upon obtaining permission from the faculties of the respective departments.

THE UNIVERSITY SENATE

The University Senate is a body composed of the President of the University, the Professors, Associate Professors, Junior Professors, Assistant Professors, and Acting Professors of all departments, and the Librarian. The University Senate is authorized to consider any subject pertaining to the interests of the University, and to make recommendations to the Regents in regard thereto.

The Senate Council consists of the President of the University, the Deans of the several Departments, and members elected by the several faculties as follows: from the Department of Literature, Science, and the Arts, two; and from the Departments of Engineering, Medicine and Surgery, Law, the School of Pharmacy, the Homœopathic Medical College, and the College of Dental Surgery, one each.

The functions of the Senate Council are as follows:

1. To consider matters appertaining to the general welfare of the University and report upon the same to the University Senate.
2. To communicate to the Regents through the President the action of the senate.
3. To act for the Senate during vacation periods.

4. To adopt rules and regulations for the transaction of its business and to elect a secretary from its members who is empowered to call meetings at the direction of the President, at the request of two Deans, or of three members of the Council, or upon the written request of five members of the University Senate.

5. To call upon members of the University Senate for such service, information and assistance as may be desirable.

THE LIBRARIES

The libraries of the University are the General Library, the Engineering Library, the Medical Library, the Law Library, the Homœopathic Library, and the Dental Library. They contained in the aggregate, June 30, 1909, 258,609 volumes. One thousand four hundred and eighty-two periodicals are regularly received.

The General Library contains 200,091 volumes and 3,880 maps. It includes the following special collections: Parsons Library (political economy), 6,076 volumes; McMillan Shakespeare Library, 6,525 volumes; Goethe Library, 1,131 volumes. The Hagerman Collection and the Dorsch Library, formerly treated as special collections, have, with the approval of the donors, been merged in the general collection. One thousand and sixty-four periodicals are taken by the General Library.

Within the last few years the library has been enriched by several large and valuable gifts. Among the more important of these that deserve special mention are the historical books, including the Stevens Facsimiles, presented by Mr. Clarence M. Burton, of Detroit; the Morris Philosophical Library, presented by Mrs. George S. Morris; the Alpheus Felch Historical Library, bequeathed by the late Governor Alpheus Felch; the Walter Library of Romance Literature, bequeathed by the late Professor Edward L. Walter; the Stearns Musical Collection, presented by Messrs. Frederick and Frederick K. Stearns, of Detroit; the Germanic Library of the late Professor George A. Hench, presented by his mother, Mrs. Rebecca A. Hench; and the Geological Library of the late Professor Israel C. Russell, presented by his widow.

The library has recently been made one of the twenty-five depositories for a set of the printed catalogue cards issued by the Library of Congress; it has acquired a set of those printed by the John Crerar Library, of Chicago; it subscribes, also, to the card publications of the American Library Association, and the Royal Library, Berlin. Within a few years, it is hoped, the bulk of the University's book possessions will be recorded in a new public catalogue based on these various series of printed cards.

Books may be drawn by all officers and students of the University, and by others having special permission. The reading room for general use will seat 270 readers. Separate rooms are provided for advanced students where work is pursued with the necessary books at hand.

The library is open for consultation fourteen hours daily, except during the summer vacation after the close of the summer session, when it is open ten hours daily. On Sundays and important legal holidays the library is closed.

The income of the FORD-MESSER BEQUEST of $20,000, and of the COYL BEQUEST of $10,000, is used for the increase of the General Library.

THE ENGINEERING LIBRARY, containing 6,767 volumes, occupies a special room in the New Engineering Building and is in charge of an assistant detailed from the General Library. The architectural collection, begun in 1906, is housed in the Engineering Library. In addition, about three thousand books on Engineering and Architecture are shelved with the collections of the General Library. Ninety-four engineering and ten architectural periodicals are received.

THE MEDICAL LIBRARY contains 19,006 volumes and 410 pamphlets, is shelved with the General Library, and is consulted under the same regulations. Three hundred and twenty-seven journals are regularly received.

THE LAW LIBRARY, containing 27,804 volumes, occupies the large room on the second floor of the new law building. Twenty-five journals are taken.

THE LIBRARY OF THE HOMOEOPATHIC MEDICAL COLLEGE is shelved with the General Library, and is subject to the same regulations. It contains 2,912 volumes. Forty-nine periodicals are regularly received.

THE LIBRARY OF THE COLLEGE OF DENTAL SURGERY* is shelved in a room in the dental building. It contains numerous sets of valuable periodicals and the most important treatises on the theory and practice of dentistry. The whole number of volumes is 2,024. The library has recently been enriched by the private collection of the late Dr. W. D. Miller, consisting of about three hundred volumes. Seventeen dental periodicals are taken.

THE ASTRONOMICAL OBSERVATORY

The University Observatory was founded in 1852, through the liberality of citizens of Detroit, and on this account it was named the Detroit Observatory. It is situated on the northeastern border of the city of Ann Arbor, about half a mile from the University. Its principal instruments are a refracting telescope of twelve and one-fourth inches clear aperture, originally constructed by Henry Fitz, of New York, about 1855, but largely rebuilt in 1906-7 in the observatory instrument shop; and a six-inch meridian circle, made by Pistor & Martins, of Berlin, in 1854, and presented to the Observatory by Henry N. Walker, of Detroit. It has also a six-inch equatorial telescope, with objective by Alvan Clark & Sons, mounting by Fauth & Company, and supplied with a new driving clock made in the observatory shop in 1908; a four and one-half inch celestial camera mounted in combination with the six-inch equatorial; a three-inch meridian transit, with zenith telescope attachment, by Fauth & Company; a four and one-half inch comet seeker, made in the observatory shop; mean and sidereal clocks by Tiede and Howard; altazimuth instrument by Wurdemann; theodolite by Brandis; Millionaire and Brunsviga computing machines, chronometers, chronograph, transit, sextants, etc.

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*Named the TAFT LIBRARY in honor of the late Professor Jonathan Taft, by action of the Board of Regents in July, 1904.

A large reflecting telescope is being constructed for the Observatory and is now nearly completed. The optical parts of this instrument are from the works of the John A. Brashear Company, of Allegheny. The parabolic mirror has an outside diameter of 37⅝ inches, and the diameter of its silvered surface is 37⅜ inches. This telescope is mounted equatorially, and is provided with flat and hyperbolic secondaries so that it may be used either as a Newtonian or Cassegrain reflector. It is intended primarily for photographic and spectroscopic work, and a one-prism stellar spectrograph, designed especially for radial velocity determinations, has been constructed for use in connection with it, by the John A. Brashear Company. The same firm has also supplied an engine for the measurement of spectrograms.

A shop supplied with excellent machine and hand tools, including a toolmakers' lathe by Pratt & Whitney, universal milling machine by Brown & Sharpe, universal grinder by the Cincinnati Milling Machine Company, large and small drill presses, etc., is maintained at the Observatory for the repair and construction of instruments.

A new building was added to the Observatory in 1908, adjoining the original building on the east, and containing a dome forty feet in diameter for the new reflecting telescope. This building was designed to afford increased facilities for instruction and research. It contains offices and computing rooms, laboratory and class room, dark rooms for photographic work, and special rooms for the seismographs and astronomical clocks.

A set of seismographs for the registration of vibrations due to earthquakes was installed in the new building in August, 1909. These instruments are of the best modern construction and give permanent records by continuous mechanical registration. They include two Bosch-Omori horizontal pendulums, each with a steady mass of 220 pounds; a Wiechert horizontal seismograph, two components, also with a steady mass of 220 pounds; and a Wiechert vertical seismograph.

The six-inch refractor and the three-inch meridian transit are mounted in a small observatory near the main building, and are used principally for purposes of instruction. The six-inch refractor is also used as a guiding telescope for astronomical photography by attaching to it a camera carrying a Tessar lens of four and one-half inches aperture and twenty inches focal length.

The larger instruments are intended for research, and when not otherwise employed will be available to that end to such students as have the technical ability to use them to advantage.

For many years the Observatory has been receiving the principal astronomical publications, and its technical library is reasonably complete, including in round numbers about 2,500 volumes. These comprise nearly all the printed star catalogues, most of the modern publications of observatories and astronomical societies, and nearly complete files of the astronomical periodicals.

THE MUSEUMS

The University Museum contains collections illustrative of geology (the mineral collection, for convenience of instruction in mineralogy, being cared for in Tappan Hall), of zoology, and of anthropology. Special collections in botany, materia medica, chemistry, anatomy, and the industrial arts are deposited in the various buildings devoted to the subjects they illustrate. All of these are accessible both to students and to visitors. The University affords a secure depository for objects of value, and it is hoped that frequent gifts will be made to its several collections.

The following descriptions indicate the character of some of the collections included in the University Museum.

I. The Geological Collection consists of:—

a. The large series of lithological and palæontological specimens brought together by the State geological survey, of which over a hundred fossil species have become the types of original descriptions.

b. The White Collection, consisting of about 6,000 specimens, of invertebrate fossils.

c. The Rominger Collection embracing about 5,000 species of invertebrate fossils, represented by at least 25,000 specimens. The collection contains (1) the types of all the palæozoic corals described by Dr. Rominger in the Geological Report of Michigan, volume iii,—not alone the specimens figured, but numerous specimens of each species, which are not duplicates, but illustrations of different characters and varieties; (2) a collection of *Stromatoporoids;* (3) a collection of *Bryozoa;* (4) palæozoic fossils belonging to all the other classes; (5) a collection of European fossils especially rich in Cephalopoda and sponges.

d. Miscellaneous Donations, Collections and Purchases, including a series illustrative of the metalliferous regions of the Upper Peninsula, collected by the late Professor Alexander Winchell; a collection of cretaceous fossils from the Yellowstone Valley, presented by the late General Custer, U. S. A.

The entire collection, the larger portion of which consists of invertebrate fossils, is estimated to contain approximately 17,000 entries and about 60,000 specimens.

II. Mineralogical and Petrographical Collections.—The mineral collections comprise more than 40,000 specimens. For instructional purposes several large collections have been arranged. These are (1) a large display and study collection, (2) an unlabeled collection for use in determinative mineralogy, (3) a lecture collection of about 2,500 specimens, and (4) the blowpipe collection. The minerals of Michigan, especially those of the Lake Superior mining region, are well represented by large suites.

The petrographical collections contain several thousand specimens, and consist of (1) a systematic labeled collection for lecture and study purposes. Many of the specimens of this collection were brought together by the older State Geological Survey. This collection is accompanied by a large number of thin sections. (2) There is also a good collection of unlabeled specimens for determinative purposes.

The University has from time to time come into the possession of various private mineral collections, of which the Lederer, Rominger, Garringer, and Collier collections may be mentioned.

All of the above collections are housed in the Mineralogical Laboratory in the basement of Tappan Hall.

III. The Zoological Collections are large and valuable. They include a series of animals from Western United States made by Lieutenant Trowbridge, and a large number of specimens from South America and the Philippines collected by Dr. Joseph B. Steere; they have recently been greatly enlarged through the Museum Expedition to various parts of the United States. In addition to the special collections mentioned below there are numerous specimens of invertebrates in alcohol.

The *Mammal Collection* contains a valuable series of skins in addition to the specimens on exhibition.

The *Bird Collection* includes about 6,000 skins and 1,600 mounted specimens. A series of groups illustrative of special facts has been installed. In these groups the natural surroundings are reproduced in detail.

The *Reptile and Amphibian Collection* contains a good series of Michigan specimens, the variety and the number of specimens making it the most valuable collection of its kind in the State. The value of the herpetological collection is at present being greatly enhanced by the addition of large numbers of specimens from the West Coast of Africa; these are presented to the Museum by Mr. George Schwab.

The *Insect Collection* is largely a reference one and is composed chiefly of Michigan specimens. It is stored in Comstock insect boxes and occupies 8 cabinets, each provided with space for 20 boxes.

The *Mollusk Collection* includes shells of about 6,000 species, representing most of the genera of land, fresh-water, and marine mollusks. The specimens on exhibition are thoroughly classified and make the collection of special value to the student.

A special effort is made to accumulate zoological specimens from all parts of the State, in sufficient quantity to permit of detailed scientific study, and, as far as circumstances will permit, capable persons will be given every advantage to study these collections.

IV. The Anthropological Collections. Among the most notable features of this department of the Museum are:—

a. The Oriental Section, including the entire Chinese Collection, mentioned below, weapons, clothing, farm implements, carpenters' tools, porcelains, and idols from China, Formosa, and the Philippines, secured by the Beal-Steere Expedition, and an interesting series of South Sea Island weapons, presented by the Smithsonian Institution.

In 1885 the Chinese government presented to the University the exhibit which it sent to the New Orleans Exposition. A part of the collection, numbering several thousand specimens, is on exhibition in the museum building. It illustrates with special fullness the varieties of Chinese cotton, the Chinese processes of manufacturing cotton and the finished products of cotton and silk. There are many articles showing the skill of the Chinese in working in wood, in ivory, and in porcelain, in embroidery, and in painting on glass and on silk.

b. The Stearns Collection of musical instruments, comprising over 1,400 typical instruments of all nations—ancient and modern, civilized and savage—illustrating the history of music and the progress of musical art.

c. The collection of Peruvian and New Mexican ceramics, including an exceptionally fine series of ancient Peruvian burial pottery and modern basins secured by the Beal-Steere Expedition, and an extensive series of New Mexico pottery received from the Smithsonian Institution.

d. The modern Indian section, including wearing apparel, implements of war and the chase, and household utensils of the South American, North American, and the Alaskan Indians, and a fine example of the Alaskan totemic column.

e. The Stone Age section, including the local collection of the late David De Pue, a series of Danish implements, and a series of casts of rare implements prepared by the Smithsonian Institution.

MUSEUM OF THE FINE ARTS AND HISTORY

The works of art belonging to the University are about to be removed from the galleries provided for them in the library building and to be installed in the new Alumni Memorial Hall. A printed catalogue, prepared by Professor Martin L. D'Ooge, contains fuller descriptions than can here be given. The collection was begun in 1855. It contains a gallery of casts, in full size and in reduction, of some of the most valuable ancient statues and busts, such as the Hermes, the Apollo Belvidere, the Laocoon, the Wrestlers, and the Sophocles; more than two hundred reductions and models in terra cotta and other materials; the statue of Nydia by Randolph Rogers; casts of modern statues, busts, etc., and reliefs; a number of engravings and photographic views, illustrating especially the architectural and sculptural remains of Ancient Italy and Greece; a small collection of engraved copies of the great masterpieces of modern painting; two series of historical medallions—the HORACE WHITE COLLECTION, presented by Honorable Andrew D. White, and the GOVERNOR BAGLEY COLLECTION—the former illustrative of ancient, mediæval, and modern European history, the latter designed to embrace the commemorative medals struck by order of Congress or other authorities, and now containing one hundred such medals; and a large collection of coins, chiefly Greek and Roman, presented to the University by the late Dr. Abraham E. Richards.

THE ROGERS GALLERY comprises the entire collection of the original casts of the work of the late Randolph Rogers, more than a hundred in number. It was given by that distinguished sculptor to the State of Michigan for the University museum.

THE LEWIS GALLERY, bequeathed to the University by the late Henry C. Lewis, of Coldwater, comprises about four hundred and fifty paintings and forty pieces of statuary.

Through the generosity of Mr. Henry P. Glover, of Ypsilanti, the University has recently acquired possession of the valuable De Criscio collection of Latin inscriptions, about 250 in numer, ranging in age from the reign of Augustus to the 5th century, A. D. The most of the inscriptions are on slabs of marble.

The late J. Q. Adams Fritchey, A.M., of St. Louis, Mo., a graduate in the Class of 1858, bequeathed to the University a collection of modern coins, medals, and medallions, numbering about one thousand, issued prior to 1876, and possessing historic value and interest to numismatists.

Dr. Henry Smith Jewett (A.B., 1868), of Dayton, Ohio, has recently presented to the University a complete set of the various issues of fractional currency put out by the United States government during the Civil War and Reconstruction periods. Accompanying this collection is a nearly complete set of the "documentary" stamps issued by the government during the Civil War.

A small but valuable collection of Egyptian antiquities has recently been presented by A. M. Todd, Esq., of Kalamazoo, Mich.

SPECIAL COLLECTIONS AND MUSEUMS

THE BOTANICAL COLLECTION is shelved in the botanical laboratory, and contains, in addition to plants collected by the public surveys, several valuable herbaria and sets of plants that have been presented to the University or purchased from time to time. Among these some of the most important are the HOUGHTON HERBARIUM, the SAGER HERBARIUM, the AMES HERBARIUM, the HARRINGTON COLLECTION, the BEAL-STEERE BOTANICAL COLLECTION, the ADAMS-JEWETT

COLLECTION, and the GARRIGUES COLLECTION, all of which have been described in Calendars of previous years.

Among the more recent acquisitions are Collins, Holden, and Setchell's Phycotheca Boreali-Americana, Briosi and Cavara's Funghi Parasiti, Seymour and Earle's Economic Fungi, Ellis's North American Fungi, presented by Mr. Joseph B. Whittier, large additions to the cryptogramic flora of Michigan, arranged and catalogued by the late Mr. Lorenzo N. Johnson, and nearly 2,000 species of plants, mostly phanerogams, collected by Mr. Lewis Foote while engaged in the United States Lake Survey, and presented by him to the University.

In addition to these *exsiccati,* there is an extensive collection of material mounted in alcohol or formalin in museum jars, illustrating the biological relations of plants.

The collections in PHARMACOGNOSY and INDUSTRIAL CHEMISTRY occupy a floor space of 2,500 square feet in the chemical building, and are briefly described as follows:

The PHARMACOGNOSY COLLECTION comprises several thousand mounted and labeled specimens of products from all parts of the world, such as are used for medicinal, alimentary, and industrial purposes. The articles are of vegetable and of animal origin, and are arranged in the present system of scientific classification. Water-color plates and photographs, showing the form and habit of the plant, accompany the crude drugs and their products. Series of chemical constituents, isolated by students, and mounted in part in the relative proportions in which they exist in the plant, make up a phytochemical exhibit of composition. There is a set of drawings and wall-charts of the histological structure of drugs, foods, and condiments, for aid in the study of adulterations, together with photomicrographs of longitudinal and transverse sections.

The cultivation and preparation for the market and the commerce of these articles among the peoples of the earth are illustrated by collections of authentic photographs, many of which have been expressly procured for the study of commerce with distant parts of the world.

CHEMICAL INDUSTRY.—In this collection the natural resources and chief manufactures of Michigan, and of various parts of the world, are illustrated. Crude materials, raw and unfinished products, as well as completed articles of commerce in their several grades, are displayed, together with models and plans of reproduction by modern methods. Among the branches of industry and articles of manufacture represented are petroleum products; Portland cement; clay wares; the beet-sugar manufacture; the great alkali works; starches, oils, and other maize products; wood distillation: the coal-tar dyes. These illustrations of the several branches of chemical technology are for the most part subject to continuous change from the results of the work of the laboratory and the material offered for investigation.

The Museum of Anatomy and Materia Medica and the Dental Museum are housed in the buildings of the Medical and the Dental Departments, respectively, and are described in the chapters devoted to those departments.

THE LABORATORIES

In the several Laboratories of the University opportunities are provided for practical instruction in physics, chemistry, mineralogy, geology, zoology, psychology, botany, forestry, actuarial work, engineering, histology, psychology, hygiene, electrotherapeutics, pathology, anatomy, and dentistry.

The laboratories designed primarily for students of engineering, of medicine, and of dentistry are described in the chapters devoted to the engineering, the medical, and the dental departments.

PHYSICAL LABORATORY

The basement of the physical laboratory, the floor of which is only two feet below grade, is devoted to the experimental work in heat, electricity and magnetism, and to research. It contains twelve rooms, including one for photometry and one for a large storage battery for experimental purposes. Current from this battery and from the University power house is available in all these rooms.

On the first floor are two lecture rooms, one seating one hundred twenty and the other four hundred students. An apparatus room is adjacent to each lecture room. This floor contains in addition a large laboratory for beginners, two auxiliary rooms, and a suite for the office of the director.

The second floor contains eleven rooms, the largest of which is used as a second laboratory for beginners. The others are devoted to sound, light, and electro-chemistry.

The laboratory is supplied with apparatus from the best European and American makers. It is particularly well equipped in sound, light and electricity. The annual budget allows the addition each year of apparatus to illustrate recent advances in physics. The new addition to the building happily provides more room for the work of graduate students.

CHEMICAL LABORATORY

The chemical laboratory occupies a four-story fire-proof building erected in 1909 at a cost of a little less than $300,000. In shape it is a rectangle 230 by 130 feet enclosing two courts. It contains 125 rooms and has a total floor area of 104,500 square feet. Ventilation is provided by eight fans capable of changing the air in the entire building every eight minutes, and the temperature is controlled by thermostats. The concrete construction of the building allowed an exceptionally liberal amount of window space, and artificial illumination by tungsten lamps is provided on an equally generous scale.

There are three lecture rooms with preparation rooms adjacent, and five class rooms. The building contains a reading room with seats for eighty-five readers. It is expected that in the near future the whole chemical library of about seven thousand volumes will be transferred to this room, but at present it contains only a small reference library and a few duplicate sets of the most frequently used journals, the rest of the very complete chemical library remaining in the general library building. The dispensing rooms and store rooms occupy a stack in the center of the building extending from the basement to the attic, with provision for dispensing on each of the main floors.

All the chemistry for the various Departments of the University, except the technical chemistry of the Department of Medicine and Surgery, is taught in this building. About fifty courses are offered, and approximately seven hundred students pursue laboratory work during each semester. There are nine large student laboratories each approximately 42 by 58 feet, two being assigned to general chemistry, two to qualitative analysis, two to quantitative analysis, one to organic chemistry, one to pharmacy, and one being held as an overflow for such work as most needs it. Somewhat smaller laboratories accommodating from twenty-four to thirty-six students are assigned to physical chemistry, chemical technology and gas analysis. Smaller laboratories are provided for advanced work in general inorganic, physical organic, pharmaceutical and metallurgical chemistry as well as specially equipped rooms for electrochemistry, work involving constant temperatures, spectroscopy, photometry, photography, calorimetry, pyrometry, metallography, assaying, the manufacture of Portland cement and other processes involving high temperatures. The offices and private laboratories of the teaching staff are located close to the appropriate student laboratories.

In addition to a full supply of routine materials and apparatus for work in general, analytical, organic, physical, pharmaceutical, and technological chemistry, facilities are offered for advanced study and research along many lines. For the preparation of raw materials, there are adequate grinding mills, both hand and power, for a wide variety of work. A continuous extraction apparatus holding twenty liters, a hydraulic press capable of exerting a pressure of five thousand pounds per square inch, a small filter-press and a power-driven centrifugal machine are also provided. Direct current is available at various voltages from storage batteries, rotary transformers, and the 220-volt power plant for electrochemical or electrothermal work. There are various types of resistance, resistor, and arc furnaces as well as oil and gas fired furnaces for high temperature work, and both electrical and optical pyrometers. The laboratory is well equipped with apparatus for the most delicate measurement of resistance and electro-motive force. Facilities are provided for the preparation and microscopic or photomicrographic examination of specimens either in thick polished section by vertical illumination or in thin section by either plane or polarized light. Seventy analytical balances are distributed in eleven balance rooms and in private laboratories, and others for heavier loads or of greater delicacy are reserved for special purposes. An especially accurate balance is placed in a constant temperature room.

MINERALOGICAL LABORATORY

This laboratory occupies ten rooms in the basement of Tappan Hall and has a total area of over 6,000 square feet. One large room is used for general laboratory purposes, another is devoted to blowpipe methods and chemical crystallography, while a third is used for petrography, crystal measurement and drawing. Another large room contains the display and study collection of minerals. The collections of the laboratory are extensive and comprise over 40,000 specimens. (For a description see page 47.) There is also a well appointed lecture room directly in connection with the general laboratory and mineral collections. Of the other rooms mention may be made of four small dark rooms for goniometric and optical investigations.

The general laboratory is well equipped with crystal models, natural crystals, and working collections for the rapid determination of minerals, principally by means of the physical properties. It is also equipped with goniometers, polarization microscopes, and other crystallographic-optical instruments necessary for the thorough study of crystals. These instruments are all of the most modern and approved types. The laboratory also possesses good lecture and working collections of rocks and thin sections. The blowpipe laboratory possesses ample facilities for carrying on blowpipe tests, both upon plaster tablets and charcoal, as well as all other chemical reactions useful in the determination of minerals.

The facilities of the laboratory are such that, aside from the general courses, special attention is given to graduate and research work along the line of crystal measurements, chemical crystallography, and general mineralogy.

GEOLOGICAL LABORATORY

The geological laboratory is located on the first floor of the Museum building. In addition, the Israel C. Russell Seminary room on the top floor of the same building is fitted up as a geographic laboratory. In it on shelves and in cases are arranged for convenient use the books, maps, and pamphlets of the Russell Library, the generous gift of Mrs. Russell to the University. Reading tables are provided for the more advanced students of the department. Upon the walls is a set of Howell's Continental models, while the Rand-McNally Physical Maps of the Continents and the Zittel palæontological wall charts are conveniently arranged for consultation. Other physical and palæontological maps and models, including Howell's United States modelled upon a globe, are kept in the large geological lecture room upon the first floor of the Museum building.

BOTANICAL LABORATORY

In the botanical laboratory instruction is given in the practical study of the structure, development, physiology, and classification of plants, and opportunity is offered for investigation in cellular biology in embryology and development, in physiology, pathology, and ecology.

Students in the more elementary courses have constant personal assistance and direction from the instructors; the advanced courses require more independent work. Every facility within the means at command will be provided for those capable of doing work in research.

The laboratory comprises six large rooms for general work, five smaller rooms for the work of instructors and investigators, a room for alcoholic material, dark rooms, and store rooms. The section assigned to morphology and cytology is provided with microscopes (among them a Zeiss microscope with mechanical stage, apochromatic objectives, and compensation oculars), camera lucidas, polarizing apparatus, and photographic cameras; Cambridge, Minot-Zimmermann, Jung, and freezing microtomes; sterilizers, means for imbedding, stains and reagents, Wardian cases, and aquaria. The equipment for physiology, besides work rooms provided with chemicals and general apparatus, includes a conservatory, a dark room with constant temperature, incubators, sterilizers, horizontal microscopes, balances, thermographs, barometer, auxanometers, klinostats, and centrifuges. The heavier machines are driven by water motors and an electric motor. There is a good working library in the laboratory, containing, besides many monographs, the leading French, German, and English periodicals.

BOTANICAL GARDEN AND ARBORETUM

Through the gifts of friends and an agreement with the city of Ann Arbor, the University has come into possession of a parcel of land containing about ninety acres. The city coöperates with the University in developing this tract as a botanical garden and arboretum.

The land is within the eastern boundary of the city of Ann Arbor and fifteen minutes' walk from the campus. It has a frontage of more than three-quarters of a mile on the Huron River. The topography is exceedingly varied, the highest point being 185 feet above the river. The soils vary from heavy clay to light sands.

About fifteen acres of hillside and ravine are already covered with native trees, shrubs and herbaceous plants. A greenhouse, with laboratory adjacent, has recently been completed. This will be devoted entirely to experimental work connected with the garden and the botanical laboratory. The following plantings have been made:—(1) An experimental garden devoted to the work in plant breeding, (2) a shrub garden, (3) a medicinal garden, (4) a pinetum, (5) a nursery.

In the nature of the case years must elapse before the development of the grounds can express the features planned. But from the very beginning the garden will be of benefit to the University, especially for the work in plant ecology, forest botany, and landscape design.

ZOOLOGICAL LABORATORY

The zoological laboratory comprises twenty rooms in the second and third stories of the south wing of University Hall, with about 8,000 square feet of floor space; it is lighted by fifty-six windows. There is a large room for the elementary work of students, and three smaller rooms for more advanced work. These rooms accommodate sixty-six students at one time. There is a room for the housing of small mammals, a room for storage, and a room in which a reference library is shelved. The instructors in charge have private rooms; and three small rooms, each accommodating one or more persons, are used by students engaged in investigation. These rooms are provided with water and gas, and are fitted with tables especially designed for the work. A room for work in experimental zoology, a small lecture room, and a photographic room have been equipped, each for its special use. There is also a room set apart in the museum building for the use of persons engaged in the study of museum material.

Suitable provision has been made for the study of animals inhabiting the neighboring waters. There are sixteen large aquaria (the largest seven feet long), and there are arrangements for maintaining thirty small aquaria for the rearing of embryos and the study of isolated forms.

There is a good equipment of microscopes, including a Zeiss microscope with apochromatic lenses, of microtomes, of Zeiss's photographic apparatus, and of other accessories. For illustrative purposes, there is a collection of alcoholic specimens (many of them from the Naples Zoological Station), a full collection of Lueckart's, Nitsche's, and Lendenfeld's wall charts, and a small collection of Ziegler's models in wax and Blaschka's models in glass. For field work there are provided collecting apparatus and field glasses for the individual use of students and photographic cameras, a boat, and larger pieces of collecting apparatus for collective use.

PSYCHOLOGICAL LABORATORY

The psychological laboratory is situated in a detached building in a quiet part of the campus. It contains fourteen rooms of various sizes for general laboratory work and research, including two dark rooms with outside windows. The rooms are all wired so that they can be connected electrically or be supplied with low potential currents from a dynamotor and storage batteries. The rooms are amply supplied with water and gas. Sufficient power for all purposes is furnished by electric motors.

The equipment includes a complete set of apparatus for the work of elementary experimental classes, models of the brain and sense organs, Hipp chronoscopes, kymographs, a large pendulum and gravity chronograph to regulate the registration apparatus, the minor accessories for reaction work, Meumann's time sense apparatus, the Marbe color mixer, a practically complete set of Hering's instruments for color determinations, the various instruments made by Verdin for recording the movements of the vocal organs, a fall phonometer of improved design, a hydraulic air compressor for blowing the siren and Appunn's reeds, an Ellis harmonical, forks by Koenig, Edelmann, and Appunn, a Stern tonvariator, and an unusually complete series of instruments for recording variations in circulation, respiration, and voluntary effort under the influence of mental states. In addition, there are many of the usual instruments for work in other lines. Such apparatus as is needed for advanced work or research will be procured as required. Every facility and encouragement is offered to students of sufficient preliminary training to undertake investigation on some special problem.

FOREST LABORATORY

In the forestry laboratory students receive instruction in forest botany, timber physics, structure of woods, and certain features of wood technology, as well as in forest measurements and the methods of study of the growth of timber. A good collection of wood specimens, sections of trees, and herbarium material is provided and will be increased as rapidly as possible There is an ample supply of microscopes, compasses, calipers, height measures, and other apparatus for use in the laboratory and in the field.

SAGINAW FOREST FARM

Special facilities for the study of forestry are supplied by the Saginaw Forest Farm, a tract of land about one mile west of the city of Ann Arbor, presented to the University by the Honorable Arthur Hill, of Saginaw. The farm, comprising eighty acres, is a typical example of the low hilly land of the drift district, and contains as great a variety of topographical and soil conditions as could be expected in an area of this extent. Its soils vary from heavy clay to sandy gravel. In addition to its other good features, there is a lake of clear water, from ten to fifty feet deep and covering an area of twelve acres.

The farm is to serve as an object lesson in forestry. Upon it provision is to be made for (1) an arboretum of all useful forest trees that can grow in Michigan; (2) demonstrative ideas for seedbed and nursery work; (3) model plantations of forest trees, and (4) special experiments in forestry, relating to various methods of propagating different kinds of timber, to the raising of particular forest products, and to other practical purposes.

STATISTICAL LABORATORY

This laboratory is equipped with various instruments to facilitate the computation and tabulation of statistics; among these may be mentioned one twenty-figure Millionaire arithmometer, one sixteen-figure Millionaire arithmometer, one sixteen-figure Tate arithmometer, one thirteen-figure Brunsviga arithmometer, several adding machines, and a tabulating typewriter. Students are instructed in their use in the preparation and tabulation of premiums, reserves, and other schedules required in the practical work of insurance offices and statistical bureaus. The laboratory also contains a working library comprising complete sets of most of the important actuarial journals and text-books on actuarial theory. Reports on vital and other statistics are drawn from the general library when required.

OTHER FACILITIES FOR INSTRUCTION

For descriptions of the various laboratories, shops, museums, etc., used in connection with the work in the professional Departments, see the chapters on the several Departments.

THE HOSPITALS

There are two hospitals connected with the University, affording ample facilities for clinical instruction. One of them is under the direction of the Faculty of the Department of Medicine and Surgery; the other is in charge of the Faculty of the Homœopathic Medical College. Further information in regard to the hospitals is given in the chapters on the medical departments.

AIDS TO MORAL AND RELIGIOUS CULTURE

The churches of the city of Ann Arbor are cordially thrown open to the students, whose interests are largely consulted by the pastors in their pulpit instruction and in their plans of work. There are churches of the following communions in the city: Baptist, Congregationalist, the Disciples, English Lutheran, German Lutheran, German Methodist, Methodist Episcopal, Presbyterian, Protestant Episcopal, Roman Catholic, and Unitarian.

The Students' Christian Association, comprising the University Young Men's Christian Association, and the University Young Women's Christian Association, has a large membership. It holds meetings for religious and social improvement.

The work for college men is carried on under this organization in McMillan Hall, corner of State and Huron Streets. The University Young Men's Christian Association is affiliated with the World's Student Christian Federation, and the Graduate Secretary of the Students' Christian Association is its General Secretary. He spends practically his entire time in the interests of college men.

The work for college women is carried on in Newberry Hall, opposite the University campus on State Street. The University Young Women's Christian Association was organized in 1901, and at present has over one hundred and fifty members. It is affiliated with the state and national association, and has a General Secretary who devotes her time to the interests of college women.

An organization known as the Federation of Christian Workers acts as a clearing house for all religious and social work among the young people of Ann Arbor.

Guilds and other societies, consisting chiefly of students, have been organized in several of the churches both for religious and moral culture and for social entertainment. The Hobart Guild, connected with St. Andrew's Church (Protestant Episcopal), has a commodious building, called Harris Hall, planned and equipped for the objects of the guild; and two of the several lectureships contemplated in its plans have been endowed,—the Baldwin Lectureship for the Establishment and Defense of Christian Truth, and the Charlotte Wood Slocum Lectureship on Christian Evidences.

The Tappan Presbyterian Association owns the buildings known as McMillan and Sackett Halls; it has a theological library of several thousand volumes, and one of its purposes is to maintain courses of lectures upon church history and church work. Its secretary, known as a Student Pastor, has his office in Sackett Hall. Its active work centers about the Christian Endeavor Society of the local Presbyterian Church.

The Methodist Episcopal Church has organized the Wesleyan Guild, and has a permanent fund for the support of the Henry M. Loud Lectureship.

The hall of the Baptist Students' Guild (Tucker Memorial), opposite the First Baptist Church, is the center of work among Baptist students The two upper floors have students' quarters, accommodating fifteen men, while the first floor, with its library, reading and music room, and office is used for general social and religious purposes. The Guild also employs a Director who devotes his whole time to the student work.

The Young People's Religious Union is a society formed in the Unitarian Church with similar purposes.

The society organized in connection with the Church of the Disciples is called the Inland League.

All Catholic students are expected to become members of the Students' Catholic Club, which meets twice a month in St. Thomas Parish Hall. The society is under the personal supervision of the pastor of St. Thomas Church. Its object is both social and religious. A fund is being collected with which to erect a Catholic Club building.

The Christian Science Society was formed in accordance with the Manual of The First Church of Christ, Scientist, in Boston, Mass. Students and alumni of the University who are members of The Mother Church are eligible to membership.

FACILITIES FOR PHYSICAL TRAINING

Gymnasiums.—The University has two gymnasiums, one for men and one for women, erected at a cost of about $125,000. The former is called the Waterman Gymnasium; the latter, the Barbour Gymnasium. In the conduct of the gymnasiums the aim is not so much the development of a few gymnastic experts as the provision of wholesome physical exercise for the many. The facilities of the buildings, including physical examinations and instruction, are free to all students, the only charge being a rental of $2 a year for a locker. A physical examination and a stated amount of gymnasium work in regular classes are required of students in the Department of Literature, Science, and the Arts, and in the Department of Engineering during their first year of residence at the University. For other students, gymnasium work, for the present, is voluntary.

PHYSICAL TRAINING FOR MEN

The Waterman Gymnasium.—The Waterman Gymnasium was named in honor of the late Joshua W. Waterman, of Detroit, who contributed largely to its cost. The main floor is a rectangle with truncated corners and dimensions of 150 by 90 feet, and is well equipped with the various kinds of apparatus usually found in the best modern gymnasiums. Several smaller rooms are devoted to administration, fencing, boxing, and other special purposes, while the basement is given up to baths and lockers. The main hall is lighted in the daytime through a large skylight 66 feet above the floor, and in the evening by electricity. A gallery makes room for an elliptical running track 375 feet in length.

Dexter M. Ferry Athletic Field.—By the generosity of Mr. Dexter M. Ferry, of Detroit, an addition of about twenty-five acres has been made to the grounds formerly known as Regents' Field. The combined tract of thirty-five acres lies a few minutes' walk southward from the campus, and is set apart and equipped especially for open-air sports.

Supervision of Athletic Sports.—The general supervision of athletic sports is vested in a Board of Control, consisting of eight members.* The Board thus constituted has charge of all matters involving the relation of athletic sports to the University; for example, the eligibility of players proposed for any University team, the arrangement of intercollegiate games, the granting of leaves of absence, and the investigation of charges of misconduct on the part of players. The policy of the Board is to foster the spirit of honor and gentlemanliness in athletics, to suppress evil tendencies, and to see that play shall not encroach too much upon the claims of work. For the furtherance of these ends certain specific rules and regulations have been adopted, a copy of which can be had on application to the Secretary of the University.

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*The Board of Control for the year 1909-1910 consists of Professors Whitney, Fitzpatrick, Patterson, Myers, and Holbrook, Mr. H. E. Bodman, and Messrs. H. A. Bunschu and R. T. Sayles. Mr. Philip G. Bartelme is Director of Outdoor Athletics.

PHYSICAL TRAINING FOR WOMEN

The Barbour Gymnasium.—The Barbour Gymnasium is named in honor of the Honorable Levi L. Barbour, of Detroit, a former Regent of the University and a liberal contributor to the funds for its erection. The building contains, in addition to the gymnasium proper, the offices of the Dean of Women and Director of the Gymnasium; a club room and parlors for the college women, a hall (Sarah Caswell Angell Hall) accommodating 550 people, for lectures, meetings, theatrical entertainments, etc. The gymnasium is a large room with floor space 90 x 80 feet, well lighted, well ventilated and amply equipped with the necessary apparatus for individual and class work. The gallery has a running track 310 feet long. The basement contains dressing rooms, shower baths, and a swimming tank which is open to all women registered in the gymnasium, with instructions in swimming free of charge. Before beginning the gymnasium work each student receives a careful physical examinaton made by the Director of the Gymnasium and consulting physician and the work is assigned accordingly. If a girl is physically unable to undertake the general class work she is given individual work carefully adapted to her own need. Especial attention is given to the correction of faulty posture and any deformity which may be benefited by intelligent exercise. Tennis, basket ball, hockey, archery and cross country walks form part of the fall and spring work. Owing to the necessity of having uniform gymnasium suits they should not be purchased·before entering college. If it is necessary to do this, communication should first be made with the Director of the Gymnasium in regard to the material and style required.

Palmer Field.—The Women's League has purchased, with the help of Alumnæ and a very generous gift from the Honorable Thomas W. Palmer, of Detroit, a tract of seven and one-quarter acres of land situated within five minutes' walk of the gymnasium. Hockey and basket-ball fields, tennis courts, and an archery range provide ample opportunity for varied outdoor exercise.

Class Work.—Three periods a week of physical training are required of first year students. Class work in the gymnasium begins the first Monday in November. During October and from the spring recess to June 1 there will be regular work on Palmer Field.

For detailed information concerning courses see page 92.

ORATORICAL ASSOCIATIONS

In addition to the University instruction· in oratory, an active and earnest interest in public speaking is fostered and maintained through the agency of voluntary associations of students, which arrange and conduct debates and oratorical contests and co-operate with similar organizations in other institutions.

UNIVERSITY ORATORICAL ASSOCIATION

The University Oratorical Association was organized by students of the Department of Literature, Science, and the Arts, and of the Department of Law, under the guidance of the professor of oratory, to foster an interest in oratory and debate, and also to participate in the annual contests of the Northern Oratorical League and of the Central Debating League, and in such other contests as may be arranged by the association.

At the annual oratorical contest held the third Friday of March, the students who take first and second honors, respectively, are chosen to represent the University as orator and alternate in the annual contest of the Northern Oratorical League. In 1909 the first and second honors were awarded, respectively, to Fredrick Bardwell McKay and Claude Cecil Ritje.

Kaufman Testimonial.—Nathan M. Kaufman, of Marquette, Michigan, provides annually $150, to be awarded as follows: $100 to the student who shall win first honor in the University Oratorical Contest, and $50 to the student who shall win second honor.

Chicago Alumni Medal.—The Chicago Alumni Association of the University of Michigan offers annually a bronze medal as a testimonial for excellence in oratory. The medal, designed by Mr. Louis H. Sullivan, of Chicago, is given to the student who is awarded the first honor in the University Oratorical Contest.

NORTHERN ORATORICAL LEAGUE

The Northern Oratorical League is composed of the oratorical associations of the University of Michigan, Northwestern University, the University of Wisconsin, Oberlin College, the State University of Iowa, the University of Minnesota, and the University of Illinois. Its purpose is to foster an interest in public speaking and to elevate the standard of oratory, by holding annual contests. The contests are open only to undergraduates.

Lowden Testimonial.—To encourage public speaking in the universities whose oratorical associations compose the Northern Oratorical League, the Honorable Frank O. Lowden, of Chicago, in 1901 established an endowment fund, amounting to $3,500, and placed it in the hands of the Regents of the State University of Iowa, as trustees. From the interest annually accruing therefrom the sum of $100 is awarded to the person receiving first honor at the annual contest of the Northern Oratorical League and $50 to the person receiving second honor.

PEACE CONTEST

The Peace Contest is held annually under the auspices of the Intercollegiate Peace Association. Preliminary contests are held in Illinois, Indiana, Michigan, Ohio, Pennsylvania, and Wisconsin, and the winners of these contests compete in the Interstate Contest which is held (in May each year) in connection with the annual convention of the Intercollegiate Peace Association. The orations must not exceed sixteen minutes in delivery, and must deal with some phase of the general subject of international peace or arbitration. This contest is open to all students of the University who are doing at least twelve hours of regular work.

The representative of the University of Michigan in May, 1909, was Albert Hargrave Reynolds.

Peace Testimonial.—The students who receive first and second honors at the Interstate Contest are awarded $75 and $50, respectively. Testimonials of $75 and $50 for the first and second honor men are also provided for the Michigan Intercollegiate Peace Contest of 1910.

CENTRAL DEBATING LEAGUE

The Central Debating League is composed of the debating associations of the University of Michigan, Northwestern University, and the University of Chicago. Its purpose is to discuss, in public, leading questions of the day, and in this way to develop ready and useful speakers.

The men who represent the University of Michigan in the Central League contests are chosen at the Annual Inter-department debates, held the week before Thanksgiving. The men chosen for the debates of 1910 were Roy Jackson Adair, Joseph George Black, Solomon Blumrosen, Edmund Bigelow Chaffee, Frank Bateman Keefe, and Alonzo Timothy McKean.

Alger Medals.—As a memorial to the late Senator Russell A. Alger, who established the Alger Medals, Mrs. Alger contributes annually the sum of $75 for the purpose of furnishing appropriate medals for the Honor Debaters of the University. The medals are awarded to the six men who appear in the intercollegiate debates.

CUP DEBATE

In May, 1898, the Detroit Alumni Association presented the University Oratorical Association with a silver loving cup, and requested that it be competed for annually by the Alpha Nu and Adelphi Societies in the Department of Literature, Science, and the Arts, and the Webster and Jeffersonian Societies in the Department of Law. The society which wins the cup the greatest number of times in twenty years is to hold it as a permanent trophy. The annual cup debate is held the second Friday in May. In these contests students who have previously won a University honor in debate, or have been members of a winning cup team, are ineligible to compete. In 1909 the cup debate was won by the Webster Society.

OTHER UNIVERSITY ORGANIZATIONS

Lecture Association.—The Students' Lecture Association provides each year, at a low price for admission, an attractive course of lectures.

Women's League.—The Women's League, an organization of six hundred or more women, made up of undergraduates, wives of members of the Faculties, and alumnæ, was organized in 1890 for general helpfulness to the women students. At the opening of college, committees from the League meet trains and assist the Dean of Women in helping young women in every way, and especially in finding suitable rooms. The League serves also as an employment bureau, and in general aids in shaping wisely the social life of the women.

Choral Union.—The Choral Union is an organization of students and others, for study and practice of choral music under the direction of the professor of music in the University, and for the promotion of general musical culture. Under the auspices of the University Musical Society,* the following courses of concerts, known as the Choral Union Series, is announced for the year 1909-1910:

I. October 25, 1909, Schumann-Heink, Song Recital.
II. November 12, 1909, Yolanda Merô, Piano Recital.
III. December 3, 1909, Cecil Fanning, Song Recital.
IV. January 3, 1910, The Kneisel Quartette.
V. March 22, 1910, Fritz Kreisler, Violin Recital.

SEVENTEENTH ANNUAL MAY FESTIVAL

VI. Wednesday evening, May 18, 1910, Miscellaneous Concert.
VII. Thursday evening, May 19, 1910, "La Vita Nuova," Wolf-Ferrari.
VIII. Friday afternoon, May 20, 1910, Symphony Concert.
IX. Friday evening, May 20, 1910, Miscellaneous Concert.
X. Saturday evening, May 21, 1910, "Odysseus," Bruch.

The Columbian Exposition Organ, presented to the University by the University Memorial Society, and now known as the Frieze Memorial Organ, in memory of the late Professor Henry Simmons Frieze, is used in this course of concerts.

Philological Society.—The Philological Society is an association of all members of the faculties in the departments of the ancient and modern languages, together with such advanced students in these departments as may be proposed by faculty members for election to it. The society holds regular meetings, at which papers embodying the results of original research are read and discussed. Occasionally lecturers are secured from other universities.

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*The University Musical Society is a body corporate under the laws of the State of Michigan. It has no organic connection with the University, though its membership is restricted to past and present University officers and students. This society has established the University School of Music in Ann Arbor, in which systematic instruction is given in vocal and instrumental music, such as the University cannot undertake to provide. The conditions under which University credit may be obtained for work in the School of Music may be ascertained by conference with the Professor of Music. (See page 132.) A series of ten chamber concerts is included in its annual programme. Catalogues of the school may be had by applying to Professor A. A. Stanley.

Deutscher Verein.—The Deutscher Verein is an organization whose members are elected upon recommendation from students in German, who have completed Courses 1 to 4 inclusive, or their equivalent. Its purpose is to bring together in a social way those students who are pursuing German courses of an advanced grade, to cultivate thus a facility in the use of the language, to stimulate a deeper interest in contemporary German literature, culture, and life, and to establish an *esprit de corps* among future teachers of the language in the state. Occasional lectures are given. Its members also present one or more standard German plays each year.

Cercle Dramatique Francais.—In connection with the French Department, the Cercle Dramatique Français offers students an opportunity to improve their pronunciation and their general knowledge of the language through the thorough study and presentation of French dramatic masterpieces. The club is composed of active, associate, and honorary members. All associate members are eligible to active membership upon the recommendation of a committee composed of the Director and three student members appointed by the president of the club. Aside from the dramatic performances, the Cercle seeks to further the interest in the French language, literature, and life by weekly lectures given by members of the French Department and by distinguished men of letters from abroad.

Other Organizations.—Other organizations of various nature and purposes exist among the faculty and the student body, which cultivate other interests of the University life not so closely connected with the work of any special department.

The students of the Department of Law arrange annually for a celebration of Washington's birthday.

ADMISSION TO THE UNIVERSITY

The requirements for admission to the various Departments of the University are given in detail in the pages of the Calendar devoted to those Departments.

APPROVED HOMES FOR WOMEN

Since in the judgment of the University authorities it is deemed wise that men and women room in different houses, all women entering the University are required to communicate with Mrs. Myra B. Jordan, Dean of Women, before securing rooms. A list of houses where only women are taken may be obtained from Dean Jordan by writing at any time after July 1.

A limited number of women can be accommodated in houses under the jurisdiction of the Women's League. These houses are supplied with parlors, and the home and social life are under the supervision of the Dean of Women. Applications should be made to Dean Jordan, as stated in the preceding paragraph.

ATTENDANCE AND DISCIPLINE

The State of Michigan extends the privileges of the University, with only moderate charges, to all persons of either sex who are qualified for admission. Thus it does not receive patronage, but is itself the patron of those who seek its privileges and its honors. It cannot, however, be the patron of idleness or dissipation. Its crowded classes have no room except for those who assiduously pursue the studies of their choice, and are willing to be governed in their conduct by the rules of propriety.

Students not in their places at the opening of the semester must present written excuses from their parents or guardians for the delay.

Such delinquencies as tardiness, absence, deficiencies, and offences against good order, in the several departments of instruction, are ordinarily dealt with by the Administrative Officers of the Departments in which the student is enrolled. Flagrant cases are reported to the Faculty for adjudication.

Students are suspended or dismissed whenever, in the opinion of the Faculty, they are pursuing a course of conduct seriously detrimental to themselves or the University.

The following is a By-law of the Board of Regents:—

"Whenever any Faculty is satisfied that a student is not fulfilling, or likely to fulfill, the purpose of his residence at the University, or is for any cause an unfit member thereof, the President shall notify his parents or guardian, that they may have an opportunity to withdraw him, and if not withdrawn within a reasonable time, he shall be dismissed."

RELATION OF STUDENTS TO CIVIL AUTHORITIES

Students are temporarily residents of the city, and, like all other residents, are amenable to the laws. If guilty of disorder or crime, they are liable to arrest, fine, and imprisonment. A rule of the University Senate provides that if a student is arrested, or is convicted of any offence by the civil authorities, he shall be cited to appear before the Faculty of the Department in which he is matriculated, and shall be liable to suspension or expulsion.

FELLOWSHIPS, SCHOLARSHIPS, LOAN FUNDS, AND PRIZES*

Buhl Classical Fellowship.—Mr. Theodore D. Buhl, of Detroit, has generously continued the provision for a Classical Fellowship for the year 1909-1910 with an income of five hundred dollars. For the current year the income is divided between Henry M. Gelston, A.B., and Paul D. Thompson, A.B.

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*The most of the funds here mentioned are restricted in use to the Department of Literature, Science, and the Arts, though some of them are also available in other Departments of the University.

Newberry Classical Fellowship.—Mrs. Helen H. Newberry, of Detroit, has generously provided the sum of three hundred dollars for the continuance of a Fellowship in the Classics during the year 1909-1910.

Stevens Classical Fellowship.—Mrs. William A. Stevens, of Detroit, has generously provided the sum of three hundred dollars for a Fellowship in the Classics for the year 1909-1910. The holder of the Fellowship is Harriet R. Congdon, A.B.

George S. Morris Fellowship in Philosophy.—Provision for a Fellowship in Philosophy, with an income of four hundred dollars, was continued by Mrs. George S. Morris. For the year 1909-1910 the holder of the Fellowship is Roy W. Sellars, Ph.D.

Angeline Bradford Whittier Fellowship in Botany.—This Fellowship has been established in memory of his mother by Joseph Bradford Whittier, of Saginaw. The principal sum of the endowment is four thousand dollars. The holder of the Fellowship for the year 1909-1910 is Burton William Scheib, A.B.

Rockefeller Fellowship in Bacteriology.—The Rockefeller Institute for Medical Research has continued its grant for a Scholarship in Bacteriology for the year 1909-1910. The holder of the Scholarship is William A. Perkins.

Fellowship in Gas Engineering.—The Michigan Gas Association continues for the year 1909-1910 the support of the Fellowship in Gas Engineering which it has maintained since 1900-1901. The annual stipend is five hundred dollars. By the terms of the gift the course of study is in charge of the heads of the departments of instruction in chemical engineering and mechanical engineering. The holder of the Fellowship for the current year is Benjamin Meyer Ferguson, B.S.

Charles James Hunt Fellowships.—In July, 1900, Mr. Charles James Hunt, of Detroit, a graduate of the University in the Class of 1846, and wife, conveyed by deed, to the Board of Regents, in trust, the title to certain pieces of real estate, subject to Mr. Hunt's life-interest in the income to be derived therefrom, and to the life-interests of other persons named in the deed. After the terminations of these life-interests "one or more fellowships in the University of Michigan" are to be established in accordance with conditions named in the deed of trust and in accompanying documents, and are to be known as the Charles James Hunt Fellowships.

Phillips Scholarships.—The late Henry Phillips, Jr., of Philadelphia, Pa., made provision in his will for the establishment and maintenance of six scholarships, to be known as the Phillips Scholarships, in the Department of Literature, Science, and the Arts of the University of Michigan. By the terms of the will these scholarships are to be given only to candidates for the degree of Bachelor of Arts, who excel in the Greek and Latin studies required for admission to the University; and they are to be awarded by a committee consisting of the President of the University, the Dean of the Department, the senior professor of Greek, and the senior professor of Latin.

Of the six scholarships contemplated in the bequest, three have been established, with an income of fifty dollars each. They are awarded to students, otherwise properly qualified, who by special examinations show that they excel in the requirements for admission in Greek and Latin. The examination covers the ground included in two units of Greek and four units of Latin (see page 78). In 1909 these scholarships were awarded to Henry Van Wesep, Lorin Heacock, and Agnes Frances Seelye.

In 1910 the examination will be held on Saturday, October 29, and will be open only to students already admitted to the freshman class. Application for admission to this examination must be made to the Dean of the Department on or before October 15, 1910.

Lucinda Hinsdale Stone Memorial Scholarship.—The Michigan State Federation of Women's Clubs has presented to the University the sum of three thousand dollars, as a portion of a fund to be known as The Lucinda Hinsdale Stone Supplementary Loan Scholarship Fund, the income of which is to be administered by the President of the University, the Dean of Women, and a third person of their appointment (who shall be a woman), for the benefit of women who are students in the University. On an average three young women each year have been assisted by the income from this fund.

Detroit High School Scholarships.—The alumni of the Detroit High School have established several scholarships open to graduates of that school. The first steps toward raising a fund for this purpose were taken in 1891; and a corporation has since been formed under the title of the Detroit High School Scholarship Fund Association.† From four to six students at a time usually enjoy the benefit of the fund. Several of the beneficiaries have received degrees at the University. One of the scholarships is known as the Mary C. Leete Memorial Scholarship, in memory of a teacher who died in 1894.

Saginaw High School Scholarships.—Four scholarships, with an annual income of two hundred and fifty dollars each, established by the Honorable Arthur Hill, of Saginaw, W. S., and known as the

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†The State Legislature in 1893 passed an act providing "that five or more persons of full age, residing in the State of Michigan, may associate and incorporate themselves together for the purpose of establishing scholarships in the University of Michigan, for the benefit of graduates of the high schools of the State." A corporation organized in accordance with the provisions of this act "shall be under the general management of not less than five, nor more than fifteen trustees," and "shall, in law and equity, be capable of taking and receiving real and personal estate . . . . not exceeding one hundred thousand dollars in the aggregate, for the purpose of its incorporation."

John Moore, the Wells-Stone, the Alonzo R. Bingham, and the Otto Roeser scholarships, are open to graduates of the Saginaw, W. S., High School.

The Saginaw, E. S., High School offers several scholarships of varying amounts to deserving graduates of that school. One of these is known as the Heavenrich Brothers & Co.'s Scholarship, and is provided by the mercantile firm of that name. Another, designated as the High School Scholarship, is cared for largely by the High School Lyceum. A third is known as the A. R. Loveland Scholarship. The graduating class of 1900 also made provision for a scholarship to be available every sixth year. These scholarships are all administered as loan funds.

Grand Rapids High School Scholarships.—The High School Scholarship Association of Grand Rapids is a body incorporated under the State Law, for the purpose of assisting graduates of the Grand Rapids High School to secure a college education in the Department of Literature, Science, and the Arts, or the Department of Engineering, of the University of Michigan.

Perry Scholarship Fund.—The Alumni Association of the Ann Arbor High School, in 1898, established a fund, in memory of Walter Scott Perry, graduate of the University in the class of 1861, and for twenty-seven years Superintendent of the Ann Arbor Schools.

The purpose of the fund is to assist graduates of the school in procuring an education in the Department of Literature, Science, and the Arts of the University of Michigan. It is administered as a Loan Fund,* repayments to be made by beneficiaries under regulations prescribed by the Board of Directors of the High School Alumni Association.

Saginaw Valley Alumnae Association Scholarship Fund.—The Saginaw Valley Alumnae Association in 1904 established a fund for the aid of undergraduate women in the Department of Literature, Science, and the Arts. The Fund is administered as a Loan Fund under the direction of the Women's Dean and representative Alumnae.

Seth Harrison Scholarship Fund. –The Seth Harrison Scholarship Fund was established in memory of her father, by Mrs. Clara Harrison Stranahan, of Brooklyn, N. Y. The principal of the fund was originally twenty-five thousand dollars, but this has been increased by additions from unexpended income. The income is to be used, on conditions specified in the covenant between Mrs. Stranahan and the Board of Regents, for the benefit of descendants of Seth Harrison who may be pursuing studies in the Department of Literature, Science, and the Arts of the University of Michigan, whenever applicants properly qualified present themselves. Provision is made, however, for applying the income of the fund to scholarships for other persons, "if at any time there shall be a period of seven years during which there are no qualified applicants," descendants of Seth Harrison.

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*In 1899 an act was passed by the State Legislature containing the following provisions: "Any five or more persons of full age residing in the State of Michigan may associate and incorporate themselves together for the purpose of establishing loan funds for the benefit of school scholars and students of this State, to assist them to attend the University of Michigan" (and other State educational institutions). "All the funds received by any corporation organized under this act shall be used, after paying necessary expenses, for the exclusive purpose or purposes set forth in the articles of association. . . . Such corporation shall in equity and law be capable of taking and receiving real and personal estate . . . not exceeding twenty-five thousand dollars, in the aggregate, for the purpose of its incorporation."

Margaret Smith Hunt Scholarships, James B. Hunt Scholarship, and Charles James Hunt Scholarship.—In July, 1900, Mrs. Margaret Elsie Hunt, of Detroit, a student in the University in the year 1878-9, conveyed by deed to the Board of Regents, in trust, the title to certain pieces of real estate, subject to Mrs. Hunt's life-interest in the income to be derived therefrom. After the termination of this life-interest, "one or more scholarships in the undergraduate course of studies in the Department of Literature, Science, and the Arts" are to be established in accordance with conditions named in the deed of trust and in accompanying documents, and are to be known as the Margaret Smith Hunt Scholarships.

In February, 1902, Mr. and Mrs. Hunt conveyed by deed to the Board of Regents, in trust, the title to a certain other tract of land, subject to Mrs. Hunt's life-interest in the income to be derived therefrom and to certain other life-interests and conditions named in the deed. After the termination of these life-interests, and in accordance with conditions named in the deed of trust, and in accompanying documents, a portion of the income derived from the trust is to be devoted to the maintenance of the James B. Hunt Scholarship, so named in memory of the father of Charles James Hunt; a second portion to the maintenance of a scholarship, to be known as the Charles James Hunt Scholarship; and the remainder to the maintenance of Margaret Smith Hunt Scholarships in addition to those previously provided for.

Scholarship of the Class of 1894.—The Class of 1894 established a fund, the income of which is "to be used as a loan fund for the benefit of needy and worthy undergraduates in the Literary Department," on condition that the Board of Regents "shall require of such student or students as may receive the benefit of such fund a promise to repay to said Board the sum loaned on such terms as shall seem to said Board to be reasonable; it being the intention of the donors of said fund that the same shall be kept intact, as far as possible.".

Scholarship of the Class of 1897.—The Class of 1897 has established a fund, a portion of which is available as a loan fund.

Scholarship of the Class of 1898.—The Class of 1898 has established a scholarship fund, the proceeds of which are not yet available.

Scholarship of the Law Class of 1899.—A small sum, contributed by members of the Law Class of 1899, is available as a loan fund.

Students' Lecture Association Fund.—Under the condition of the gift made to the Board of Regents by the Students' Lecture Association, a small fund is available for loan to students in any Department of the University. All loans are to be made through a committee consisting of the President of the University, the Dean of the Department of Literature, Science, and the Arts, the Dean of the Department of Medicine and Surgery, and the Dean of the Department of Law, and they are to be secured by note payable one or more years after the borrower has completed his university course.

Newton Van Der Veer Loan Fund.—In January, 1900, the Regents accepted from Mrs. George Wagner a sum of money as the nucleus of a fund to be known, in memory of her father, as the Newton Van Der Veer Loan Fund; and to be used in loans "to needy students in such amounts and under such conditions as the executive head of the University may deem proper and wise."

Detroit Collegiate Alumnae Fund.—In March of 1907 the Detroit Branch of Collegiate Alumnae established a fund for the aid of undergraduate women in the University. This fund is administered as a loan fund under the direction of the Dean of Women and representative Detroit Alumnae.

Ann Arbor Collegiate Alumnae Fund.—The Ann Arbor Branch of the Association of Collegiate Alumnae has established a fund for the aid of undergraduate women in the Department of Literature, Science, and the Arts. This fund is administered as a loan fund under the direction of the Dean of Women and a committee of Alumnae.

Alice Freeman Palmer Scholarship.—The Alumnae of the University are trying to raise five thousand dollars to endow this scholarship, and a consderable sum has already been paid in to the University Treasurer.

Good Government Club Prize.—The income of the sum of five hundred dollars, presented to the Board of Regents by the Good Government Club of the University, is available, under the conditions of the gift, as a prize "for the best essay on some theme connected with the subject of good government." The professor of Political Economy, the Dean of the Department of Law, and the professor of History are a committee to choose themes for the essays and to award the prize.

The Todd Prizes.—Honorable A. M. Todd, of Kalamazoo, Michigan, offers to the students of this University two prizes of one hundred dollars each for the best essays on certain specified political, governmental, and sociological themes.

These prizes may be competed for by students enrolled in any department of the University, who have taken an academic degree here or at any other reputable college or university, and by undergraduate students of any department whose record indicates that they will probably graduate from their department in 1909 or 1910. No student is allowed to compete for more than one of the prizes. The essays should not be unduly expanded. Each writer should sign his essay with an assumed name or motto and should send in with it, in a sealed envelope, his real name and his home address, placing the assumed name or motto on the outside of the envelope. He should deposit the essay with the President of the University on or before May first, 1909.

FEES AND EXPENSES

Matriculation Fee.—Every student, before entering a Department of the University, is required to pay a matriculation fee. This fee, which, for citizens of the United States, legally resident in Michigan, or their wards, is ten dollars, and for others, twenty-five dollars, is paid but once, and entitles the student to the privileges of permanent membership in the University.

Annual Fees.—In addition to the matriculation fee, every student has to pay an annual fee for incidental expenses, and, in some Departments, a small additional fee for special purposes. These fees are paid the first year of residence at the University, and every year of residence thereafter. Resident graduates are required to pay the same annual fees as undergraduates. The annual fees in the several Departments of the University are as stated below. By "Michigan students" is meant those who are citizens of the United States, legal residents of Michigan, or their wards.

Department of Literature, Science, and the Arts: for Michigan students, thirty dollars; for all others, forty dollars. The fee required from graduate students who are granted the privilege of pursuing studies for an advanced degree *in absentia* is ten dollars for each year of registration. Students in this Department who are pursuing a combined course, and, in consequence, are registered at the same time in one of the professional Departments, are required to pay the annual fee due from students in such professional Department.

Department of Engineering: for Michigan students, forty-five dollars; for all others, fifty-five dollars. The fee required from graduate students who are granted the privilege of pursuing studies for an advanced degree *in absentia* is ten dollars for each year of registration.

Department of Medicine and Surgery: for Michigan students, forty-five dollars; for all others, fifty-five dollars. The fee required from graduate students who pursue special advanced laboratory courses in this Department is, in addition to the ordinary laboratory expenses, ten dollars for each course taken. A laboratory fee of two dollars a year is also required of all students in this Department.

Department of Law: for Michigan students, fifty-five dollars; for all others, sixty-five dollars. A library fee of two dollars a year is also required of all students in this Department.

School of Pharmacy: for Michigan students, forty-five dollars; for all others, fifty-five dollars.

Homœopathic Medical College: for Michigan students, forty-five dollars; for all others, fifty-five dollars.

College of Dental Surgery: for Michigan students, forty-five dollars; for all others, fifty-five dollars. A further charge of three dollars a year is made to cover the cost of certain special supplies provided by the University.

The matriculation fee and the annual fees must be paid within two weeks after registration. A by-law of the Board of Regents provides that no student or graduate shall be allowed to enjoy the privileges of the University until he has paid all fees that are due. Holders of fellowships and of scholarships are required to pay the matriculation fee (if not already paid), the annual fees, the graduation fee, laboratory expenses, and other similar charges, the same as other students of the Department in which their work lies.

Fee for Special Entrance Examinations.—An applicant for admission to any Department of the University who presents himself for the entrance examinations at a date later than that announced in the University Calendar is required to pay the University Treasurer a fee of five dollars before he can receive permission to take the examinations.

Laboratory Expenses.—Students who pursue laboratory courses of study are required to pay for the materials and apparatus actually consumed by them. The deposits required in advance are different for the different courses, ranging from one to twenty dollars. The laboratory expenses of students vary with their prudence and economy. In the chemical laboratory the average expense for each course is about one dollar and twenty cents a week.

Demonstration Courses.—A fee of ten dollars is charged for each of the demonstration courses given in the Department of Medicine and Surgery.

Gymnasium Expenses.—A charge of two dollars a year is made for the rental of a locker.

Graduation Fee.—The fee for graduation is ten dollars. The by-laws of the Board of Regents prescribe that no person shall be recommended for a degree until he has paid all dues, including the fee for graduation.

Teacher's Diploma.—The fee for the Teacher's Diploma is two dollars, which must be paid in advance.

Fees for Summer Session.—(*a*) In the Department of Literature, Science, and the Arts: a uniform fee of twenty dollars for the session is required of all students. (*b*) In the Department of Engineering: a uniform fee of twenty dollars for the session is required;

an additional fee of ten dollars is required of all students who take the summer field work in surveying. (*c*) In the Department of Medicine and Surgery and in the Department of Law: the fees vary with the amount and character of the work taken. Further information is given on subsequent pages in the chapter relating to the Summer Session.

Other Expenses.—Students obtain board and lodging in private families for from three and a half to six dollars a week. Clubs are also formed in which the cost of board is from two dollars to three dollars and a half a week. Room rent varies from seventy-five cents to two dollars and a half a week for each student. The annual expenses of students, including clothing and incidentals, are, on the average, about four hundred dollars. The University does not undertake to furnish manual labor to students; yet a few find opportunities in the city for remunerative labor.

There are no dormitories and no commons connected with the University. Students on arriving in Ann Arbor can obtain information in regard to rooms and board by calling at the office of the Secretary of the University.

Department of Literature, Science, and the Arts

The Department of Literature, Science, and the Arts owes its name to a provision in the legislative act under which the University was organized in the year 1837. Its aim is to cover the broad field of general university study of the ancient and the modern languages and literatures, of history, philosophy, mathematics, science, and the liberal arts, as distinguished from the more special work of the professional schools in engineering, medicine, law, pharmacy, and dentistry; and it offers a large number of courses of instruction, from which the student is allowed to choose such as he is qualified to pursue.

The Graduate School established in connection with this Department is under the direction of an Administrative Council, appointed from the Faculty of the Department.

A description of the Summer Session is given in a subsequent chapter.

The academic year extends from the Tuesday preceding the first Thursday in October* to the last Thursday in June (October 4, 1910, to June 29, 1911).

REQUIREMENTS FOR ADMISSION

ADMISSION OF CANDIDATES FOR A DEGREE

[For admission to advanced standing, see page 85.]

[For admission of students not candidates for a degree, see page 86.]

[For admission of graduate students, see the chapter on the Graduate School.]

Applicants for admission as undergraduates must be at least sixteen years of age, and must have completed the requirements for admission, as here described. These requirements are stated in units, a unit meaning the equivalent of five recitations a week for one year in one branch of study. The subjects from which choice may be made, and the number of units which will be accepted in each subject, are as follows:

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*Except in years preceding leap-years, when it begins upon the Tuesday next preceding the first Wednesday in October.

English Composition and Literature, 3 or 4 units.
Mathematics (Algebra and Geometry), 3 units.
Physics, 1 unit.
Greek, 2 units.
Latin, 2, 3, or 4 units.
French, 2, 3, or 4 units.
German, 2, 3, or 4 units.
History, 1, 2, or 3 units.
Chemistry, 1 unit.
Botany, 1 unit.
Zoology, 1 unit.
Biology, 1 unit.
Physiography, 1 unit.
{ Physiography, ½ unit.
{ Trigonometry, ½ unit.

Fifteen units are required for admission. These fifteen units must include three units in English Composition and Literature, three units in Mathematics, one unit in Physics, and at least two units in Latin, French, or German. The other six units may be selected by the applicant from the foregoing list.

Applicants who offer Trigonometry may complete the unit by offering one-half year's work in Physiography. For the full unit in Physiography the text-book work must be supplemented by work in the laboratory and in the field.

Biology is defined as one-half year of botany and one-half year of zoology, hence it cannot be accepted from an applicant who offers at the same time either, or both, of those subjects.

Applicants for admission who intend to enter the Combined Literary and Medical Course must offer two units of Latin.

Scope of the Preparatory Work

The following descriptive outline indicates the amount of preparation expected in each of the subjects named:—

English Composition and Literature.—The three units in English composition and literature should cover the following subjects:—

Composition.—As preparation for this requirement, it is expected that the student will have prepared, under the direction of a competent instructor, one or more written exercises each week for at least three years. A sufficient number of these exercises should be corrected by the teacher and revised by the student to secure the desired accuracy. It is highly desirable that longer and more carefully planned papers should be a feature of the fourth year. The subjects upon which the student writes should not be drawn exclusively from literature; a considerable proportion of them should be so distributed as to give proper training in the various types of discourse, namely, description, narrative, argument, and exposition.

The student's credentials should show the amount and character of the work in composition.

Rhetoric.—The student should be grounded in the essentials of rhetoric, but those principles should receive emphasis which are most likely to be of service to him in his practice in writing, such as the principles of sentential structure, paragraphing, and the outlining of the essay. The correction of stock specimens of bad English is not recommended, and will form no part of the entrance requirement.

Grammar.—The applicant should be prepared to state intelligently the essential principles of grammar and to explain the syntactical structure of any sentence encountered in his reading.

Readings of Classics.—The following books are recommended by the Joint Conference on Uniform Entrance Requirements in English:

1906-1911. For **reading,** ten books selected from the following list:

Group I. (two to be selected): Shakespeare's *As You Like It, Henry V, Julius Caesar, The Merchant of Venice, Twelfth Night.* **Group II.** (one to be selected): Bacon's *Essays;* Bunyan's *The Pilgrim's Progress,* Part I; The Sir Roger de Coverley Papers in *The Spectator;* Franklin's *Autobiography.* **Group III.** (one to be selected): Chaucer's *Prologue;* Spenser's *Faerie Queene,* (selections); Pope's *The Rape of the Lock;* Goldsmith's *The Deserted Village;* Palgrave's *Golden Treasury* (First Series), Books II. and III., with especial attention to Dryden, Collins, Gray, Cowper, and Burns. **Group IV.** (two to be selected): Goldsmith's *The Vicar of Wakefield;* Scott's *Ivanhoe;* Scott's *Quentin Durward;* Hawthorne's *The House of the Seven Gables;* Thackeray's *Henry Esmond;* Mrs. Gaskell's *Cranford;* Dickens's *A Tale of Two Cities;* George Eliot's *Silas Marner;* Blackmore's *Lorna Doone.* **Group V.** (two to be selected): Irving's *Sketch Book;* Lamb's *Essays of Elia;* De Quincey's *Joan of Arc* and *The English Mail Coach;* Carlyle's *Heroes and Hero Worship;* Emerson's *Essays* (Selected); Ruskin's *Sesame and Lilies.* **Group VI.** (two to be selected): Coleridge's *The Ancient Mariner;* Scott's *The Lady of the Lake;* Byron's *Mazeppa* and *The Prisoner of Chillon;* Palgrave's *Golden Treasury* (First Series), Book IV., with especial attention to Wordsworth, Keats, and Shelley; Macaulay's *Lays of Ancient Rome;* Poe's *Poems;* Lowell's *The Vision of Sir Launfal;* Arnold's *Sohrab and Rustum;* Longfellow's *The Courtship of Miles Standish;* Tennyson's *Gareth and Lynette, Lancelot and Elaine,* and *The Passing of Arthur;* Browning's *Cavalier Tunes, The Lost Leader, How They Brought the Good News from Ghent to Aix, Evelyn Hope, Home-Thoughts from Abroad, Home-Thoughts from the Sea, Incident of the French Camp, The Boy and the Angel, One Word More, Hervé Riel, Pheidippides.*

For **study and practice:** Shakespeare's *Macbeth;* Milton's *Lycidas, Comus, L'Allegro,* and *Il Penseroso;* Burke's *Speech on Conciliation with America,* or Washington's *Farewell Address* and Webster's *First Bunker Hill Oration;* Macaulay's *Life of Johnson,* or Carlyle's *Essay on Burns.*

It is expected that the applicant will have read these books appreciatively and will have made himself familiar with the subject-matter and the form of each work. The reading should be connected, in reasonable measure, with the lives and character of the authors read and with the history of their times.

Although the books mentioned above are recommended as preparation for this part of the requirement, they are not prescribed. Books of equal merit covering a similar range of literary types will be accepted as equivalents.

It is recommended that in connection with the reading of classics, the memorizing of notable passages, in both prose and poetry, should form a regular exercise throughout the whole preparatory period. This is all-important for the development of a correct taste in language and literature.

Applicants who present themselves for examination will be asked to write two essays of not less than two hundred words each, one upon a subject drawn from the books of the foregoing list, and the other upon a subject drawn from experience or observation. The language of these essays must be grammatical and clear. The spelling, punctuation, and capitalizing must be correct. The applicant must show ability to discriminate in the use of words and to construct well-organized sentences and paragraphs. A topical outline should accompany each essay. The applicant should also be prepared to answer questions upon the fundamental principles of grammar and rhetoric.

History of English Literature.—The applicant who offers four units in English composition and literature should have pursued the study throughout the four years of the high school course. In addition to the foregoing requirement his preparation should include a systematic study of the outlines of English literary history. Due emphasis should be laid upon the division of the subject into periods; and the leading characteristics of each period should be studied and, as far as possible, illustrated by the reading of representative authors. Any of the current manuals of English literature may serve as the basis of this part of the work, which should occupy the third or fourth year of the course. The historical study should, however, be associated as closely as possible with the reading of classics.

Mathematics.—The three units in mathematics required of all applicants include algebra through quadratics, and geometry, both plane and solid (including spherical). Beman and Smith's *Elements of Algebra,* and the same authors' *New Plane and Solid Geometry* are mentioned to indicate the scope and character of the work required.

Trigonometry.—The one-half unit in trigonometry should cover the work in plane trigonometry as given in Hall and Frink's *Trigonometry* or Taylor's *Trigonometry* or an equivalent in other authors.

Physics.—The required unit in physics includes an amount represented by Carhart and Chute's *High School Physics.* The instruction in the class room should be supplemented by work in the physical laboratory to the extent of at least one period a week throughout the school year.

Greek.—The two units in Greek should be made up of grammar, prose composition, and reading, as follows:

Grammar.—Goodwin's or Hadley's. The inflections must be thoroughly mastered.

Prose Composition.—Jones's *Exercises,* with special reference to the writing of Greek with the accents, and to the general principles of syntax. Woodruff's *Greek Prose Composition* is taken as an equivalent.

Reading.—Three books of Xenophon's *Anabasis* and two books of Homer.

The so-called continental sound of the vowels and diphthongs, and pronunciation according to the written accents are preferred.

Latin.—An applicant offering two units in Latin must have completed the beginners' Latin book, and must have read not less in amount than Cæsar, *Gallic War, I-IV,* which may be selected from Cæsar, *Gallic War* and *Civil War,* and Nepos, *Lives;* and he must, further, have devoted the equivalent of one recitation period a week for one year to the writing of exercises in Latin prose composition.

N. B. This preparation is sufficient to enable the student to enter Latin A or B in the University.

An applicant offering three units in Latin must have completed the foregoing requirements for two units. He must, in addition, have read not less in amount than Cicero, *the orations against Cataline, for the Manilian Law,* and *for Archias,* or Virgil, *Aeneid, I-VI,* which may be selected from Cicero, *orations, letters,* and *De Senectute,* and Sallust, *Cataline* and *Jugurthine War,* or Virgil, *Bucolics, Georgics,* and *Aeneid,* and Ovid, *Metamorphoses, Fasti,* and *Tristia;* and he must, further, be prepared to meet the requirement in Latin prose composition described below for four units.

The Latin reading required of applicants offering four units* of Latin, without regard to the prescription of particular authors and works, must not be less in amount than Cæsar, *Gallic War, I-V,* Cicero, *the orations against Cataline, for the Manilian Law,* and *for Archias,* Virgil, *Aeneid, I-VI.* This amount of reading must be selected from the following authors and works: Cæsar, *Gallic War* and *Civil War,* and Nepos, *Lives,* Cicero, *orations, letters,* and *De Senectute,* and Sallust, *Cataline* and *Jugurthine War,* Virgil, *Bucolics, Georgics,* and *Aeneid,* and Ovid, *Metamorphoses, Fasti,* and *Tristia.* The applicant must, further, have devoted the equivalent of one recitation period a week for two years to the writing of exercises in Latin prose composition.

The following is the scope of the examination of applicants who wish to offer four units in Latin as specified above, but who are not entitled to enter on diploma. Such applicants will be examined in translation at sight of both prose and verse. The vocabulary, construction, and range of ideas of the passages set will be suited to the preparation secured by the reading indicated above. Applicants will be examined also upon the following prescribed reading: Cicero, *orations for the Manilian Law* and *for Archias,* and Virgil, *Aeneid, I, II,* and either *IV* or *VI,* at the option of the applicant, with questions on subject matter, literary and historical allusions, and prosody. Every paper in which passages from the prescribed reading are set for translation will contain also one or more passages for translation at sight; and applicants must deal satisfactorily with both these parts of the paper, or they will not be given credit for either part. The examinations in grammar and composition will demand thorough knowledge of all regular inflections, all common irregular forms, and the ordinary syntax and vocabulary of the prose authors read in school, with ability to use this knowledge in writing simple Latin prose. The words, constructions, and range of ideas called for in the examinations in composition will be such as are common in the reading of the year, or years, covered by the particular examination.

French.—The applicant who offers two units in French will be expected to pronounce French intelligently and with some fluency, to understand French when spoken in simple phrases and about familiar subjects, to read ordinary prose easily and accurately, and to write correctly in French simple sentences based on texts studied. This ability demands a firm grasp of the elements of grammar (such as the conjugation of the verb, both regular and irregular, the use of auxiliaries, the forms of the pronoun, the agreement of adjectives and particles, the main uses of the articles, and the order of words in the sentence), and such a familiarity with the structure of the sentence and common terms of expression and such command of vocabulary as may be given by the careful, well directed reading of three or four hundred pages of easy prose.

The applicant who offers three units in French should be able to read ordinary prose rapidly at sight, with clear understanding of the distinctions of tense and mode and all the common points of syntax, to reproduce in simple but connected French the substance of a narrative or dramatic text, and to follow ordinary explanations and commentaries made orally in French. In acquiring this ability accent should be laid on the rapid understanding of the French phrase, whether it be addressed to the eye or the ear. Much should be read, spoken, and dictated. At least six hundred pages of prose should be read, and in the end it should not be too easy.

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*According to the recommendation of the Commission of Fifteen on College Entrance Requirements in Latin.

The applicant who offers four units in French should be able to read at sight any French not offering very unusual difficulties of vocabulary or syntax, to translate into French a passage of simple English, and to carry on a conversation in French upon a familiar subject. He should have had, in addition to what is required for three units, at least one thousand pages of French chosen from standard authors, and he should be able to answer questions on the content and meaning of the works read as well as upon the language in which they are written.

German.*—The applicant who offers two units in German should be able to pronounce German correctly and should be thoroughly familiar with the everyday facts of the grammar. He should have read about 300-350 pages of standard modern prose and should be able to take part in a simple conversation in German on topics drawn from the works read. He should also be able to translate easy English prose into German.

The applicant who offers three units in German should, in addition to the work described above, be prepared as follows: He should have read two classics selected from the works of Lessing, Goethe, and Schiller, and about 250 pages of standard prose fiction and history. He should have a good knowledge of German syntax and should be able to write a short essay on some subject taken from the works read. He should also be able to translate ordinary English into German and to express himself in German grammatically and with ease on topics connected with his reading.

The four units in German include the foregoing requirements and additional preparation as follows: The reading of five standard dramas (exclusive of those read in the third year) selected from the works of Goethe, Schiller, Lessing, Heinrich v. Kleist, and Grillparzer; a thorough command of German grammar, and the ability to speak and write German with considerable ease and correctness. The applicant should have written several longer essays on the works read.

History.—The applicant who offers one, two, or three units in history may select from the following list:

Ancient history to the year 800 A. D., one unit.
Mediæval and modern history, one unit.
English history, one unit.
United States history and government, one unit.

A year's work in general history, with the use of such a book as Myers's *General History*, will still be accepted as one unit, though it is believed that better results will be obtained if a year is given to ancient History down to the fall of the Roman Empire (or, preferably, to the year 800 A. D.), and a year to mediæval and modern history.

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*A fuller statement of the requirements in German may be found in the "Report of the Committee of the German Section of the Michigan Schoolmasters' Club on a Uniform High School Course in German." Copies of the report may be obtained by applying to the professor of German.

The United States history is not the elementary work given in the lower grades, but an advanced course given in the later years of the high school.

Physiography.—The applicant who offers one-half unit in physiography must have studied *in class* one of the following books for a half year: Dryer's *Lessons in Physical Geography;* Gilbert and Brigham's *Introduction to Physical Geography;* Davis's *Elementary Physical Geography;* Tarr's *New Physical Geography,* or an equivalent. In this connection field excursions are earnestly recommended.

Meteorology will not be included in the examination.

The applicant who offers one unit in Physiography should have studied the subject in high school for at least one year under a competent instructor, and with the aid of field excursions and laboratory practice.

The ability to read a topographic map is essential in physiographic study; teachers will find the topographic maps issued by the United States Geological Survey an important aid.

Chemistry.—The nature and extent of the requirement in this subject are indicated by the mention of Remsen's *Introduction to the Study of Chemistry.* The study of the text should be accompanied by laboratory work.

Botany.—The unit required of those who offer Botany for admission is expected to include as much as a competent teacher, trained in laboratory methods, can accomplish with his classes in a year. No attempt is here made to indicate the exact extent of the ground to be covered, for the teacher should have large liberty in selecting material and topics as occasion requires; but it is recommended that one-half year be given to the form, structure, and habits of flowering plants, while the other half-year may be given to the natural groups of plants, physiology, and the adaptation of form and structure to environment.

The following text-books are recommended as offering numerous and helpful suggestions: Atkinson's *Elementary Botany;* Bailey's *Botany;* Barnes's *Plant Life;* Bergen's *Foundations of Botany;* Coulter's *Plant Relations and Plant Structures;* Spalding's *Introduction to Botany;* Stevens's *Introduction to Botany.* Ganong's *Teaching Botanist* is one of the most useful books for the teacher.

Zoology.—An applicant who offers a unit in zoology will be expected to have a knowledge of at least eight of the following animal types: 1 and 2. Two protozoa: Amœba, Paramœcium, Vorticella, Stentor, Volvox; 3. A sponge: Spongilla or Grantia; 4. A hydroid: Hydra, to be compared with a medusoid form; 5. An echinoderm: starfish or sea-urchin; 6. An anelid: the earthworm or the leach; 7. A crustacean: crayfish, lobster, or crab; 8. An insect: butterfly (including immature stages), grasshopper, cricket, cockroach, or other insect; 9. A mollusk: the fresh water mussel or one of the snails; 10. A fish: minnow or perch; 11. An amphibian: frog, toad, tree-toad, salamander (Amblystoma), or mudpuppy (Necturus).

These forms must be studied by the laboratory method. Laboratory work should be directed not merely toward a study of animal structure, but as far as practicable toward the study of habits and reactions. It should furnish the basis for the class room discussion of principles; especially of evolution. Of the four periods per week that must be given to the work, two at least should be laboratory periods of two hours each, and the other two should be given to recitations or other class exercises. Careful original notes and drawings must be presented by applicants as part of the examination.

The mention of the following books may serve to indicate the character of the work required: Needham's *Elementary Lessons in Zoology;* Davenport's *Introduction to Zoology;* Jordan and Kellogg's *Animal Life;* French's *Animal Activities.*

Biology.—One-half of the work above outlined in botany, together with one-half of that outlined in zoology, will meet the requirements in biology.

ADMISSION ON EXAMINATION

Applicants for admission who are not entitled to enter on diploma (See page 84) must take the entrance examination. They should register with the Dean, at his office in University Hall, the day before the examination begins. The office will be open for this purpose Monday, September 26, 1910, and Wednesday, February 8, 1911, from 9 to 11, and from 2 to 5.

The applicant may divide the examination into two parts taking one part either a year or a semester before the date of his admission and the second part at the time of admission. But if he fail to secure the requisite number of units within the specified time he forfeits all credits for the subjects he may have passed.

The examination in the several subjects will be in writing. and will be held in Tappan Hall in accordance with the schedules given below. Applicants presenting themselves too late for the scheduled examinations are required to pay an examination fee of five dollars.

This Department conducts the examinations for admission to all Departments of the University. Examinations in those subjects accepted by other Departments, but not by this, will be provided for on application to the Registrar. Some of these are given in the schedule in italics.

SCHEDULE OF EXAMINATIONS FOR ADMISSION, SEPTEMBER, 1910

	Tuesday Sept' 27	Wednesday Sept. 28	Thursday Sept. 29	Friday Sept. 30	Saturday Oct. 1
8–11	English Composition	History	Geometry	Algebra	Physics
1–3:30	Botany	English Literature	Latin English Composition	German Greek	French *Spanish*
3:30–6	Chemistry	Zoology *Physiology*	Physiography *Geology*	Latin *Astronomy*	Trigonometry

SCHEDULE OF EXAMINATIONS FOR ADMISSION, FEBRUARY, 1911

	Thursday, Feb. 9	Friday, Feb. 10	Saturday, Feb. 11
8–10	English Composition	Algebra Trigonometry	Geometry
10–12	Botany Zoology	Physiography *Geology*	Chemistry
2–4	History	Physics	Latin Greek
4–6	*Astronomy* *Physiology*	French German *Spanish*	English Literature

All examinations are held in Room 8, Tappan Hall, excepting those in French, German, and Spanish, which are in Room 12, Tappan Hall.

ADMISSION ON DIPLOMA

The privilege of sending pupils for admission on diploma is limited to schools that have been approved by the Faculty. On request of the proper authorities, the Faculty sends an officer of the University to visit a school and report upon its condition. If satisfied from the report of this officer that the school is taught by competent instructors, and is furnishing a good preperation to meet the requirements for admission, described on pages 74 to 82, then the Faculty places the school on the approved list for a period not exceeding three years (inclusive of the year of visitation); reserving, however, the right to require another inspection, if within the period specified in each case, important changes affecting the course of study in the school, or the efficiency of the instruction, seem to make an examination necessary.

The superintendent of each approved school is expected to send to the President of the University, annually, at a date not later in the year than March first, a catalogue of the school, or, if no catalogue is published, he is expected to send a statement giving the names of the teachers, the number of pupils, and a description of the courses of study.

Graduates of schools that have been placed by the Faculty on its approved list are admitted without examination on presenting a recommendation, signed by the principal of the school, certifying that they have satisfactorily done all the work required for admission. The recommendation must be made on a blank form furnished by the University.

The principals of approved schools are urged to send to the Dean, on or before September 15, the recommendation of each graduate intending to enter this department of the University, at the beginning of the ensuing college year. If, on inspection, the recommendation is found satisfactory, the Dean will forward to the applicant a certificate, entitling him to admission without examination. Such certificate, or an original recommendation, must be presented to the Dean at his office in University Hall as early as the day preceding the opening of the academic year. The office of the Dean will be open for registration of applicants for admission on diploma from 9 to 12 and from 2 to 5, Monday, September 26, to Saturday, October 1, 1910.

CONDITIONAL ADMISSION

An applicant for admission either on examination or diploma, who is deficient in not more than one and one-half units of the fifteen units required for admission, may, at the discretion of the Faculty, be admitted conditionally; but any condition thus incurred must be removed at one of the next two regular examinations for admission. No student who has an admission condition outstanding at the beginning of his second year of residence will be allowed to enter his classes until such condition is removed.

ADMISSION TO ADVANCED STANDING

1. A student who brings a certificate of standing from an approved college or university, showing that he has satisfactorily completed at least one year of the curriculum of the institution from which he comes, may be admitted without examination to equal standing in this department of the University. A graduate of one of the stronger courses of an approved normal school, who brings an official certificate explicitly describing the extent and character of his work, may be given, without examination, such advanced standing as is justified by the course he has completed.

The certificates above referred to must be presented to the Dean of the Department as early as the fifteenth of October (or, if the student enter at the beginning of the second semester, as early as the first of March).

2. All other applicants for advanced standing must present to the Registrar as early as the fifteenth of October (or, if they enter at the beginning of the second semester, as early as the first of March (a statement showing the amount of work done in the subjects in which credit is asked. The Registrar will thereupon furnish a blank form for presentation to the professors in charge of the several subjects designated in the blank, who will determine the amount of credit to which the applicant is entitled in accordance with one of the following conditions:

Either the applicant must pass a satisfactory examination in the work presented; or the applicant must, during his first year of residence in the University, creditably complete in the department of study concerned a course presupposing a satisfactory knowledge of the work for which credit is asked.

All advanced credit shall be subject to revision at the end of the first year of residence.

Credits must be secured and returned to the Registrar as early as the first of November (or, if the student enter at the beginning of the second semester, as early as the fifteenth of March). An account once closed cannot be reopened without special permission of the Dean.

ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE

Persons who wish to pursue studies in this Department without becoming candidates for a degree may be admitted as special students under the following conditions:

A. Persons over twenty-one and under twenty-five years of age, not provided for in Section B, may be admitted if they present satisfactory credentials, showing their preparation for academic work, and pass entrance examinations in nine units chosen from those accepted for entrance (see page 75). Certificates will not be accepted in place of these examinations The nine units must include three units in English and one unit in Algebra. Before the beginning of their third year of residence, such students must make up the remaining units required for admission to regular standing.

B. Persons over twenty-one years of age who have taught two years in schools of grammar or high school grade, and all persons over twenty-five years of age may be admitted. provided they pass an examination in English, and show that they are qualified to pursue profitably the studies they may desire to take up. In this examination in English, applicants will be asked to write brief essays on subjects that will be assigned, and to answer questions on the rudiments of English Grammar. The examination will be held in Room 8, Tappan Hall, at 8 A. M., Tuesday, September 27th, or at 1 P. M. Thursday, September 29.

The Dean's office will be open for the registration of applicants for admission as special students on and after Monday September 26th, from 9 to 11, and 2 to 5.

Should a special student subsequently become a candidate for graduation, he must pass all the examinations for admissoin required of such a candidate, at least one year before the time when he proposes to graduate.

Special students who wish credit for studies pursued before admission are referred to the rules relating to advanced standing given above.

REQUIREMENTS FOR GRADUATION

The degree of Bachelor of Arts is conferred upon students who have been in residence for at least one academic year, and have secured one hundred and twenty hours of credit. This credit must include Rhetoric 1 and 2. With this restriction the student may select from the work offered in the department such courses as he is qualified to pursue, subject only to the rules which follow.

A student who has earned at least sixty of these one hundred and twenty hours in mathematics and the physical and biological sciences may, at his option, receive the degree of Bachelor of Science, instead of Bachelor of Arts.

For a matriculated student regularly enrolled in this Department a Summer Session will be considered as equivalent to one-half a semester's residence.

REGISTRATION

A. All undergraduate students in the Department of Literature, Science, and the Arts are required, at the beginning of each year of residence, to enroll with the Registrar, to pay their fees to the Treasurer, and to file with the officer hereafter to be designated an election blank properly filled out, showing the courses they expect to pursue during the semester. These three things shall be considered as constituting Registration in this Department.

All students entering this Department for the first time must present their credentials either to the Dean or to the Registrar and secure from him an admission card before enrolling with the Registrar.

B. Students may register at any time up to and including the second day of the semester. After the second day, students may register only with permission of the Dean, and upon payment of an additional fee of $5.00. This fee may, in special cases of enforced absence or illness, be remitted upon application to the Dean.

C. The election blanks of all first year students and of all special students must be presented in person to the Committee on Elections. The election blanks of all other students must be presented in person to the Registrar. No credit is given for courses not properly elected. No student is allowed to elect merely a part of a course.

1. *First-Year Elections.*—Rhetoric 1 and 2 must be taken the first year of residence, unless for exceptional reasons a postponement is allowed by the Committee on Elections. In addition to the work in Rhetoric, students entering with less than thirty hours of advanced credit are expected to elect, each semester, three of the following courses, making a total of fifteen hours a week:

Greek, 1, 2 (or A, B).
Latin, 1 or *1a*, 2 (or A, B).
French, 1, 2 (or 3, 4).
German, 1, 2 (or 3, 4).
History, 1, 2 (or *1a*, *2a*).
Mathematics, 1, 2 (or 1E, 2E).
Physics, 1, 2.
Biology, 1, 2.
Chemistry, 1 and *1a*, 2 and *2a*.

If a student has credit either toward admission or toward graduation, for Courses 1 and 2, in either French or German, he may elect Courses 3 and 4. If his credit includes second-year French or second-year German, he may elect the work of the third year.

Courses, the equivalents of which have been offered for entrance, can not be again elected with credit.

In no case may courses not on this list be elected by first-year students without the permission of the Committee on Elections. The committee may be consulted between 4 and 6 daily, from Tuesday, September 27, to Wednesday, October 5, in Room B, University Hall.

2. *Number of Hours Allowed.*—In accordance with the provisions of the foregoing rule, first-year students are required to elect fifteen hours a week. For all except first-year students the maximum number of hours a week that may be elected without special permission is sixteen, the minimum twelve.

On special request students of exceptional proficiency may be granted additional hours, but in all cases such requests must be made in writing on a blank form provided by the Registrar, and must be filed with the regular election blank, on which the elections should be made as if the request had been granted.

All requests for permission to take less than the minimum number of hours must be made in writing, stating the proposed election and the reasons therefor, and must be filed with the regular election blank, on which the election should be made as if the request had been granted.

When students are allowed to make up preparatory studies in the Ann Arbor High School a corresponding reduction is made from the maximum number of hours allowed them in the University.

D. Every student is required to file with the same officers, on or before the Saturday next preceding the final examination in February of each year, an election blank showing the studies he expects to pursue during the second semester. Election blanks presented after this date will be accepted only upon payment of $1.00. This fee may, in exceptional cases, be remitted upon application to the Dean.

E. Necessary changes in elections may be made during the first week of the semester, by filing with the Registrar a revised election blank not later than 6 P. M. on Friday or Saturday of that week. In the case of first-year students and of all special students such changes can be made only after consultation with the Committee on Elections.

F. After the first week changes may be made only by permission of the Administrative Board and upon the payment of a fee of $1.00. This fee may be remitted only by the Administrative Board. Such requests for permission to take up or to drop studies must be made in writing on specially provided blank forms and in accordance with the rules printed thereon.

MEETING FOR FIRST-YEAR WOMEN

All freshmen women are required to report at Barbour Gymnasium Tuesday, October 4, at 4 P. M., to receive general instructions from the Dean of Women and the Physical Director.

RULES RELATING TO EXAMINATIONS AND CONDITIONS

1. Students are required to take the examination in all courses elected except such as they may have dropped with consent of the Administrative Board.

2. Students are in no case examined before the time set for the examination of the class in which the work has been done.

3. A student reported "passed conditionally" in a course is allowed but one opportunity for the removal of such condition, as follows:

a. Conditions received in February may be removed only at the supplementary examinations held for the purpose, on the first Friday and Saturday after the spring recess immediately following.

b. Conditions received in June, or in August, may be removed only at the supplementary examinations held for the purpose, either at the time of the entrance examinations in September, or on the first Friday and Saturday after the Christmas vacation.

If a student fails to remove a condition at the supplementary examination, the course in which he was reported "conditioned" will be regarded and treated as "not passed."

In cases of unavoidable absence from the supplementary examinations, the Administrative Board may, at its discretion, authorize a special examination.

A student desiring to be examined for the removal of a condition must notify the instructor at least three days prior to the time set for the examination.

4. A student reported "absent" from the final examination in a course can receive credit for such course only in accordance with the rules applying to the removal of conditions.

5. A student reported "incomplete" in a course must make good the deficiency within one month after the beginning of the ensuing semester; otherwise the course will be regarded and recorded as passed conditionally.

6. If a student is reported "not passed" in any course, he can receive no credit for that course unless it has been again elected and pursued as though it had not been elected before.

7. Any student who desires to remove a condition or incomplete incurred at a semester examination, or who desires to take a class examination from which he was absent at the regular time, must first obtain from the Registrar a blank form for presentation to the instructor in charge of the examination. The blank, when filled, must be deposited by the student with the Registrar within one week from the date entered upon it by the examiner.

8. Students of other departments who absent themselves from courses elected in this department forfeit the privilege of electing courses in this department.

RULE RELATING TO DEFICIENCIES IN ENGLISH

Any instructor who finds the written work of a student seriously defective in its English is expected to report the case, together with specimen papers, to a committee consisting of the Dean and the Professor of Rhetoric, who shall have power to require additional work in composition without credit.

RULES RELATING TO DELINQUENTS

1. *Warning.*—A student whose work is unsatisfactory is warned. In all such cases notice of the character of the work is sent to the student and to his parent or guardian.

2. *Probation.*—A student whose work is extremely unsatisfactory is put on probation. This means that he is in imminent danger of dismissal from the University. This penalty of dismissal may be incurred through unsatisfactory work in a single course. During the period of probation the student is on trial to prove his fitness to do work in the University. He is required to devote all his time to his studies.

RULES GOVERNING PARTICIPATION IN PUBLIC ACTIVITIES

1. *Public Activities.**—Public activities include:— (1) Participation in any oratorical or debating contest, or any dramatic or musical exhibition, (2) Service on student publications, (3) Holding a Class or University office, (4) Official connection with any of the so-called college functions, such as the Junior Hop, Freshman Banquet, and similar activities. This list is not intended to be exhaustive, but merely to indicate the character and scope of the activities referred to.

2. *Probation.*—Students on probation are forbidden to take part in any public activity.

3. *Warning.*—Students on the warned list are forbidden to participate in any public activity except by special permission of the Administrative Board.

4. *Special Students.*—Special students are prohibited from participating in any public activity except by permission of the Administrative Board.

5. *First Year*—No student shall take part in any public activity during his first year of residence in the University, except by permission of the Administrative Board. This shall not exclude freshmen without conditions and otherwise in good standing from participating in the public activities of their class.

6. *General.*—The Administrative Board has the right to prohibit a student from participating in any public activity whenever, in the opinion of the Board, such participation is detrimental to his college work.

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*NOTE—"Participation" is to be interpreted as including specific preparation for any public activity, or management thereof.

RULES RELATING TO ABSENCE

1. All absences should be explained within one week; otherwise they will be regarded as unexcused.

2. Excessive absence shall render the student liable to a reduction in general credit for the semester.

3. Willful disregard of summons from the Attendance Committee or the Dean shall render the offender liable to suspension.

PHYSICAL TRAINING FOR MEN

Work in Waterman gymnasium, twice a week, is required of first year students. The work begins on the first Monday in November, but students are expected to report to the Director of the gymnasium between October 1 and October 25 for physical examination and assignment to sections. No credit toward graduation is given for this work.

PHYSICAL TRAINING FOR WOMEN

Either Course 1, 2, or 3 is required of all women students belonging to any of the following categories: All freshmen; all students entering the University with more than one year's advanced standing, who do not bring to the Director of the Barbour Gymnasium an official statement of credit for previous college work in physical training; all special students, except those of mature age who, in the judgment of the Dean of Women, are entitled to be excused; all students above the rank of freshman, who have previously been excused on account of poor health. Students will be excused from this requirement only on account of ill-health. A physician's certificate must be presented.

No college credit is given for Physical Training.

1. Swedish System of Gymnastics. Floor work for improving posture, breathing, and coordination of muscles, apparatus work, marching, and gymnastic games. For freshmen who have had no gymnastic work. Three periods a week from November 1 to the spring recess.

2. Advanced Freshman Class. For students who have had one year of systematic high school work in physical training. Three periods a week from November 1 to the spring recess. Two periods of Swedish gymnastics more advanced than in Course 1; one period of æsthetic dancing.

The dancing period is open to other students above the rank of freshman, who have not had dancing.

3. Special Work. For students physically unable to take Course 1 or 2, and for those needing corrective work. Three periods a week from November 1 to the spring recess.

4. Advanced Gymnastic Class. Continuation of and progression in floor and apparatus work of Courses 1 and 2. Open to students above freshman rank who have done satisfactory work in Course 1 or 2. Two periods a week from November 1 to the spring recess.

5. Advanced Class in Aesthetic Dancing. Open to students above freshman rank who have done satisfactory work in the beginners' course.

6. Preliminary Training for Basket Ball. Gymnastic class for upper class women who play basket ball. One period a week. Basket ball practice one period a week.

7. Tennis, Hockey, Archery. Freshmen are required to take three periods a week of outdoor work from the spring recess to June 1. This work is also open to other students.

8. Swimming. Individual instruction. Open to all women students in the University.

No student can take part in any of the work described in the foregoing courses until she has purchased a locker ticket. These are to be obtained from the University Treasurer for $2.00.

The gymnastic work announced for freshmen is a regular academic requirement, and as such is subject to the usual regulations regarding absence and quality of work.

All students entering the University are carefully examined and measured. Other students taking any of this work are required to undergo heart and lung tests.

A regulation gymnasium suit of black serge is required. Orders for suits may be given at the office of the Director. Attempts to make the suits at home are very inadvisable unless detailed instructions are secured from the Director.

The following matters should be attended to by those interested before October 14: Making appointments for the physical examination; presenting credits to the Director; presenting certificates for excuse; giving orders for the gymnasium suit; purchasing locker ticket.

COURSES OF INSTRUCTION

The Courses of Instruction are subject to change from time to time. At the opening of each academic year, a special Announcement is issued, giving full information concerning the courses offered for the year, and the days, hours, and places of lecture, recitation, and laboratory work. From the courses offered in the various branches of learning, the student is allowed to make his choice, under regulations prescribed by the Faculty (see page 88).

The courses announced for the year 1909-1910, together with a few that may be expected in 1910-1911, are described below. The amount of credit toward graduation assigned to each course is indicated by the expression *one hour, two hours,* etc.

For convenience of reference, a few courses are included that are not ordinarily open to undergraduates, and for some of these no hours of credit are given.

GREEK

Courses A and B are designed for those who have had no opportunity to take Greek before admission, or have not been able to complete the entrance requirements in Greek. A credit of four hours will be given for each one of these courses satisfactorily completed. Students intending to enter upon the study of Greek at any time in their course will find it to their advantage to do so in their first year. Courses 1 and 2 must precede all the other regular University courses in Greek.

Courses *6a, 6b,* and 19, in addition to Courses 1, 2, 3, 5, 8, and at least two hours more chosen from other courses, are recommended to those students who are preparing to teach Greek.

FIRST SEMESTER

A. Elementary Greek. This course, with its continuation, Course B in the second semester, enables the student to take up Course 1 the following year. Two sections. *Four hours.* Dr. WINTER.

1. Homer, *Odyssey*. *Four hours.* Two sections. Professor BONNER and Dr. WINTER.

3. Thucydides and a study of the Peloponnesian war. *Three hours.* Professor BONNER.

[3*a*. Herodotus and a study of the Persian war. *Three hours.* Professor BONNER.
Omitted in 1909-1910.]

6*a*. Teachers' Course. Lectures on Greek grammar, with special reference to the origin of inflectional forms. *Two hours.* Professor D'OOGE.
This course is intended for those who are preparing to teach Greek.

[7*a*. Seminary in Tragedy. Studies in Sophocles, with special reference to textual criticism, the dramatic art of the poet, and the antiquities of the Greek stage. *Three hours.* Professor D'OOGE.
Omitted in 1909-1910.]

7*b*. Seminary in Tragedy. Studies in Aeschylus. The Oresteian Trilogy is read, with special reference to the dramatic art of the poet. *Three hours.* Professor D'OOGE.

8. History of Greek Art from the beginning to the Roman Period. *Three hours.* Professor D'OOGE.
See Course 1 in Classical Art and Archæology.

11. Plato's *Republic*. *Three hours.* Dr. WINTER.

12. Demosthenes *On the Crown* and studies in the Attic Orators. *Three hours.* Professor D'OOGE.

[13. Lucian. *The Dream, Charon, Timon, Dialogues of the Gods, Dialogues of the Dead,* and other minor pieces. Discussion of the life and times of Lucian. *Two hours.* Professor D'OOGE.
Omitted in 1909-1910.]

[15. The Bucolic Poets. Theocritus, Bion, and Moschus, with studies in the history of pastoral poetry. *Three hours.* Professor BONNER.
Omitted in 1909-1910.]

23. The *Athenian Constitution* of Aristotle, with special reference to the judicial and political antiquities of Athens. *Two hours.* Professor BONNER.

27. Bibliography of Greek Studies. *One hour.* Professor BONNER.

SECOND SEMESTER

B. Elementary Greek. Continuation of Course A. Xenophon's *Anabasis* and Greek prose writing. Two sections. *Four hours.* Dr. WINTER.

2. Plato, *Apology;* Euripides, *Alcestis.* Two sections. *Four hours.* Professor BONNER.

5. Greek Drama. Sophocles. The *Oedipus Rex;* Aristophanes, The *Acharnians. Three hours.* Professor D'OOGE.

6*b*. Greek Prose Composition. This course is intended for those who are expecting to teach Greek. *Two hours.* Dr. WINTER.

14. Greek Mythology. *One hour.* Professor BONNER.
See Course 6 in Classical Art and Archæology.

16. Greek Literature in English. No knowledge of the Greek language is required for this course. The aim is to give students an acquaintance with the masterpieces of Greek literature from Homer to Theocritus through the medium of English translations. Lectures, assigned readings, and reports. *Two hours.* Dr. WINTER.

[17. Aristophanes. The *Acharnians,* the *Birds,* and the *Frogs. Two hours.* Professor BONNER.
Omitted in 1909-1910.]

18. Euripides; rapid reading and interpretation of three or more plays. *Two hours.* Professor BONNER.

[19. Introduction to the critical study of Homer. Lectures on the history of the Homeric text, and a study of the Homeric language and verse. A critical reading and interpretation of portions of the *Iliad. Three hours.* Professor D'OOGE.
Course 19 is especially intended for those who are preparing themselves to teach Greek.
Omitted in 1909-1910.]

21. Pindar. The *Olympian* and *Pythian Odes.* Selections from Bacchylides. *Three hours.* Professor D'OOGE.

24. Greek Epigraphy. A study of the local alphabets and exercises in reading inscriptions written in them. *Two hours.* Professor Bonner.

[26. Greek Religion. Lectures and assigned topics for investigation. Professor Bonner.
Omitted in 1909-1910.]

29. Ancient Athenian Life. Illustrated by means of lantern slides. *Two hours.* Professor D'Ooge.
See Course 4 in Classical Art and Archæology.

30. Modern Greek. Practical introduction and practice in reading specimens of modern Greek literature. *Two hours.* Professor D'Ooge.

[31. Pausanias and the topography and monuments of ancient Athens. *Two hours.* Professor D'Ooge.
Omitted in 1909-1910.]

CLASSICAL CLUB.

Reports on the progress of research. Analysis and criticism of important articles in the domain of the Greek and Latin languages and literatures, Greek and Latin grammar and lexicography, Greek and Roman history, archæology and antiquities, by members of the classical faculties and members of the Latin and Greek seminaries.

LATIN

Courses A and B are designed for students entering with two units in Latin, and should be elected in the first year. A credit of four hours is given for each course.

Courses 1, or *1a,* and 2 must precede all the rest, and should be taken in the first year, if the student plans to pursue any of the more advanced courses.

In order to increase the range of work offered to advanced students, several of the courses in Latin are given in alternate years, new courses being introduced as opportunity is thus afforded.

Students who are preparing themselves to teach Latin are recommended to take Courses 7, 10, 11, 12, 17, 21, *21a,* 22, and *22a.* It is advised that they complete at least Courses 1 and 2 in Greek, either having presented two units of Greek for admission and having taken Courses 1 and 2 as regular freshman work, or if Greek be not presented for admission, having completed Courses A and B as well as 1 and 2 in the University.

Courses 1, 2, 3, 4, 5, 6, and 7 are intended primarily for undergraduates. Courses 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, and 22 are for graduates and undergraduates. Courses 18*b,* 24, 25, 26, 27, 28, and 31 are exclusively for graduates.

FIRST SEMESTER

A. Cicero. Selected Orations. *Four hours.* Dr. CRITTENDEN.

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1. Cicero, *De Senectute, De Amicitia;* Selections from Catullus; Latin Writing. Three sections. *Four hours.* Professors DENNISON and SANDERS and Dr. CRITTENDEN.

1*a*. Cicero, *De Senectute, De Amicitia;* Selections from Catullus. *Four hours.* Dr. CRITTENDEN.

1*b*. Latin Writing. Three sections. *One hour.* Professors DENNISON and SANDERS and Dr. CRITTENDEN.

3. Horace. Selections from the *Odes, Satires,* and *Epistles.* Studies in Roman Antiquities. Two sections. *Four hours.* Professor SANDERS and Assistant Professor MEADER.

3*a*. Horace. Selections from the *Odes, Satires,* and *Epistles.* *Three hours.* Professor SANDERS and Assistant Professor MEADER.

5*a*. The Private Life of the Romans. Lectures on Roman Life, with a study of the social conditions of antiquity; illustrated by stereopticon slides. *One hour.* Professor DENNISON.
See Classical Art and Archæology 3.

5*b*. Martial; Petronius, *Trimalchio's Banquet.* With special reference to the private and the social life of the Romans. *Two hours.* Professor DENNISON.

5*f*. Comparative Linguistics. A general introduction to the science of language. *Two hours.* Assistant Professor MEADER.
See General Linguistics and Comparative Philology, 5*f*.

7. Roman Political Institutions.
See Courses 3 and 5 in Roman Law.

7*a*. The *Germania* and *Agricola* of Tacitus. Interpretations and lectures. *Two hours.* Professor DENNISON.

[9. Rapid Reading of Easy Latin. The aim of this course is to train the student in the reading of Latin, without the use of the dictionary. *Two hours.*
Omitted in 1909-1910.]

11. Latin Writing. Course 11 is introductory to Course 12. The principal aim is to secure correctness of expression and a feeling for idiom. The course may profitably be taken by students whose work in the Latin writing of Course 1 has been of a high grade. Three sections. *Two hours.* Professors DENNISON and SANDERS and Assistant Professor MEADER.

[13. Juvenal. Interpretations and lectures. *Two hours.* Professor KELSEY.
Omitted in 1909-1910.]

13*a*. Lucretius. Interpretations and lectures. *Two hours.* Professor KELSEY.

[15. Introduction to Latin Palæography. Lectures on the various styles of writing found in Latin manuscripts, with exercises in reading from facsimiles. *Two hours.* Professor SANDERS.

Omitted in 1909-1910.]

17. Latin Grammar. Lectures and recitations on the phonology and morphology of the language. *Two hours.* Assistant Professor MEADER.

21. Teachers' Course. Interpretation of Cæsar's *Gallic War,* with studies in the syntax and military antiquities. *Two hours.* Professors KELSEY and DENNISON.

Courses 21, *21a,* and *21b,* are open only to those who receive special permission. Those who elect Course 21 are required to elect also either *21a* or *21b;* those receiving special permission may elect the three courses together, 21, *21a, 21b.*

21a. Teachers' Course. Lectures on the *Gallic War. One hour.* Professor KELSEY.

21b. Studies in Cæsar. *Two hours.* Professors KELSEY and DENNISON.

27. Seminary. Lucretius, with a study of the influence of Greek Philosophy at Rome. *Two hours.* Professor KELSEY.

Course 27 is open only to graduate students.

31. Lectures on the Sources of Roman Historians. *Two hours.* Professor SANDERS.

The chief historians, their methods of work, their interrelationships, and final indebtedness to tradition, historical records, or their own memories, will be discussed. Incidentally the historical foundation of much in Roman history will be touched upon. This course is intended primarily for advanced students in Latin and teachers of ancient history.

SECOND SEMESTER

B. Virgil, *Aeneid,* Books I-VI. *Four hours.* Dr. CRITTENDEN.

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2. Livy, Book I; Plautus; Terence. Four sections. *Four hours.* Professors DENNISON and SANDERS, and Dr. WINTER.

4. Roman Literature. Selections from representative authors; lectures. Two sections. *Four hours.* Professor SANDERS and Assistant Professor MEADER.

4a. General Course in Roman Literature. Lectures and topical studies. This course is designed for students interested in the general subject of literature who do not wish to make an intensive study of Latin. No knowledge of Latin is required. The Roman literature is treated in its broad relation to the Greek literature and to modern literature. Two sections. *Two hours.* Professor SANDERS and Assistant Professor MEADER.

6a. Roman Comedy. Selected plays of Plautus and Terence. *Two hours.* Professor SANDERS.

6*g*. Comparative Philology. A general introduction to comparative Indo-European and classical philology. *Two hours.* Assistant Professor MEADER.
See General Linguistics and Comparative Philology 6*g*.

7*b*. Proseminary in Roman Political Institutions. Studies in the Imperial period. *One hour.* Professor SANDERS.

8. Roman Law. See courses in Roman Law and Jurisprudence.

10. Roman Art. Elements of Roman archæology; sculpture and painting in the Roman period. Illustrated lectures. *Three hours.* Professor KELSEY.
Elect under Classical Art and Archæology, Course 2*a*.

[10*a*. The Topography and Monuments of Ancient Rome. Lectures, in part illustrated. *Three hours.* Professor KELSEY.
See Course 2*b* in Classical Art and Archæology.
Omitted in 1909-1910.]

12. Latin Writing. Advanced course, with lectures on Latin style. Three sections. *Two hours.* Professors DENNISON and SANDERS and Assistant Professor MEADER.
In Course 12, attention is given not only to correctness of expression, but also to matters of style and the finer distinctions of the language. It is limited to those whose work in Course 11 has been of a high grade.

[14. Catullus, Tibullus, and Propertius. Interpretations, with lectures on the Roman elegy. *Two hours.* Professor SANDERS.
Omitted in 1909-1910.]

14*a*. Virgil, *Georgics*. Interpretations, and lectures on the Roman writers on agriculture. *Two hours.* Professor SANDERS.

[16. Latin Inscriptions. Reading of inscriptions of different periods from the De Criscio collection and from reproductions. Interpretation of selected inscriptions. *Two hours.* Professor DENNISON.
Omitted in 1909-1910.]

16*a*. The *Letters* of Cicero. Interpretation of selected letters, with a study of Roman manners and political conditions at the end of the Republic. Professor DENNISON.

[16*b*. The Letters of Pliny. Interpretation of selected letters, with a study of Roman literary and social conditions at the end of the first century, A. D. *Two hours.* Professor DENNISON.
Omitted in 1909-1910.]

18. Latin Grammar. Lectures on syntax and style. The forms and the meanings of the more important syntactical types are treated, and special attention is given to the discussion of the factors (subjective and objective) that condition their development. The continuity of the Græco-Roman tradition in matters of style is especially dwelt upon. *Two hours.* Assistant Professor MEADER.

[18*b*. The Italic Dialects. Lectures and recitations on the phonology, morphology, and syntax of Oscan and Umbrian. Interpretation of inscriptions. *Two hours.* Assistant Professor MEADER.

Omitted in 1909-1910.]

22. Teachers' Course. Virgil. *Two hours.* Professors KELSEY and DENNISON.

Students are advised to combine *22a* with *22*, but *22b* may be elected at the same time only by special permission.

22*a*. Teachers' Course. Lectures on Virgil. *One hour.* Professor KELSEY.

22*b*. Studies in Virgil. *Two hours.* Professors KELSEY and DENNISON.

24. Reviews in Roman Literature, Latin Grammar, and Roman Political Institutions. Professors KELSEY and SANDERS and Assistant Professor MEADER.

Course 24 is designed for graduate students.

26. Reports on the Progress of Research. Continuation of Course 25. *One hour.*

28. Seminary. Roman Philosophical Writers, with special studies in Lucretius. Continuation of Course 27. *Two hours.* Professor KELSEY.

Course 28 is open only to graduate students.

CLASSICAL CLUB

Reports on the progress of research. Analysis and criticism of important articles in the domain of the Latin and Greek languages and literatures, Latin and Greek grammar and lexicography, Greek and Roman history, archæology, and antiquities, by members of the classical faculties and members of the Greek and Latin seminaries.

CLASSICAL ART AND ARCHÆOLOGY

The following courses do not require a knowledge of Greek or of Latin. The large collection of lantern slides and photographs owned by the University makes it possible to illustrate all these courses fully. The collection of casts of ancient sculpture in the Art Gallery is also utilized in the course in ancient art. A more complete statement of the material at hand for the study of Roman Archæology is given under the department of Latin.

FIRST SEMESTER

1. History of Greek Art from the Beginning to the Roman Period. Lectures and assigned readings on Greek Architecture, Sculpture, Vase-painting, and the Minor Arts. The course is illustrated with the stereopticon, and occasional lectures are given in the Art Gallery. *Three hours.* Professor D'OOGE.

3. The Private Life of the Romans. Professor DENNISON.

SECOND SEMESTER

2*a*. Roman Art. Lectures, illustrated. This course includes Elements of Roman Archæology; Roman Architecture; Sculpture, Painting, and the Minor Arts in the Roman Period. *Three hours.* Professor KELSEY.

[2*b*. Monumental History of the City of Rome. A survey of the monuments of art of different periods, with special study of the Forum, the Imperial palaces, and other topographical groups of special importance. Lectures, illustrated. *Two hours.* Professor KELSEY.
Omitted in 1909-1910.]

4. Ancient Athenian Life. Lectures illustrated with the stereopticon; assigned readings. *Two hours.* Professor D'OOGE.

6. Greek Mythology. Illustrated lectures and assigned readings. Classical myths will be treated with special reference to their influence on modern literature. *One hour.* Professor BONNER.

SANSKRIT

The study of Sanskrit is of value to students of the Indo-European (1) languages, (2) literatures, (3) philosophy and religion, (4) social institutions, and (5) for those preparing to do missionary work in India. The courses offered below are designed especially for students of the languages, ancient and modern, and are adjusted to the needs of those preparing to teach. They are correlated with the courses in Comparative Philology, but individual aid and direction will be given to any who wish to devote themselves to other aspects of the study.

Before beginning the study of Sanskrit, the student should have pursued courses in one of the three subjects, Greek, Latin, and German, or in lieu of German some one of the other Teutonic languages or a Slavonic language for at least four semesters.

FIRST SEMESTER

1. Beginners' Course. Grammar and exercises in translation and composition. Text-books: Whitney's *Grammar* or Thumb's *Handbuch des Sanskrit* and Lanman's *Sanskrit Reader. Two hours.* Assistant Professor MEADER.

[3. Advanced Reading: Kalidasa's *Cakuntala.* Elements of Prakit. *One hour.* Assistant Professor MEADER.
Omitted in 1909-1910.]

3*b*. Rapid Reading of Easy Sanskrit. *One* or *two hours.* Assistant Professor MEADER.

SECOND SEMESTER

2. Interpretation of selections contained in Lanman's *Sanskrit Reader,* with elementary studies in the comparative morphology of the more important cognate languages. *Two hours.* Assistant Professor MEADER.

[4. Advanced Reading. Selections from the *Vedas*. *One hour.* Assistant Professor **Meader**.
Omitted in 1909-1910.]

GENERAL LINGUISTICS AND COMPARATIVE PHILOLOGY

The courses announced below are designed for students of both ancient and modern languages. They aim to familiarize the students with the general principles and methods of the Science of Language and to present the most important facts in the life and growth of language. Attention is called to the course in Phonetics in the department of German.

FIRST SEMESTER

[5*f*. Principles of Linguistic Science. *Two hours.* Assistant Professor **Meader**.

This course aims to give a broad general foundation, such as will enable the teacher to judge intelligently of the nature of specific phenomena. Among the questions treated will be: the relation of psychology to linguistic science; the nature of language; speech sounds and their changes; changes in the meanings of words; discussion of grammatical categories (noun, verb, mood, etc.); classification of languages; the genesis of speech. Lectures and recitations.
Omitted in 1909-1910.]

[7. Special Problems in Comparative Philology. *One hour.* Assistant Professor **Meader**.
Omitted in 1909-1910.]

26*c*. The Psychology of Language. Among the subjects treated are: The laws of thought and language, the history of linguistic theory, language as a form of expression, the genesis of speech, and the psychology of syntax. Lectures and discussions. *Two hours.* Professor **Pillsbury** and Assistant Professor **Meader**.

Professor **Scott** and Assistant Professor **Boucke** will give lectures on special topics.

SECOND SEMESTER

[2. Etymology and Semantics. *One hour.* Assistant Professor **Meader**.
Omitted in 1909-1910.]

6*g*. Comparative Philology. Lectures and recitations. *Two hours.* Assistant Professor **Meader**.

A general introduction to comparative Indo-European philology. Study of the chief characteristics of the Indo-European languages, their relationship and classification, the origin and development of their sounds and inflections, accent and vowel gradation, comparative syntax.

RUSSIAN

In consequence of the increasing importance of Russia in intellectual, political and commercial activities, a practical acquaintance with the Russian language is rapidly becoming a necessity for English-speaking peoples. The courses offered below are especially designed for students interested in Russian literature, Russian historical sources and Indo-European Comparative Philology, and for those who are preparing to enter the diplomatic service.

FIRST SEMESTER

1. Beginners' Course. Elements of the language. The *Revisor* of Gogol and selected readings from Tolstoi will serve as the basis of the semester's work. *Three hours.* Assistant Professor Meader.

SECOND SEMESTER

2. Continuation of Course 1. Readings from Pushkin, Lermontov, Turgenev, and Tolstoi. *Three hours.* Assistant Professor Meader.

8. The Russian Novelists in English. Lectures and reading; authors; especially Tolstoi, also Gogol, Turgenev, Dostoevski, and Gorki. A reading knowledge of Russian is not required for this course. *One hour.* Assistant Professor Meader.

   This course may be elected as 8*a*, *two hours.*

SEMITICS AND HELLENISTIC GREEK AND STUDIES IN ENGLISH BIBLE

a. Hebrew.
b. Arabic.
c. Assyrian and Sumerian.
d. Aramaic, Syriac, Ethiopic.
e. Hellenistic Greek.
  (*a*) New Testament Greek.
  (*b*) The Septuagint Version. Josephus.
f. Biblical Literature and History.
  (*a*) Old Testament.
  (*b*) New Testament.
g. Non-biblical Literature, History, and Religion.

The Courses in Semitics are intended: (1) For students who are seeking a liberal culture; (2) for students of classical and modern languages, to furnish them with necessary data for the study of the philosophy of language and phonetic laws; (3) for students who wish to make a special study of Semitics (the courses lead to the degree of Doctor of Philosophy); (4) for students of ancient history; (5) for students of art and archæology; (6) for students of ethics and theology; (7) for students who in consular, commercial, missionary or other service in some part of the Muhammedan Orient expect to have to do with modern Orientals, and who wish to prepare for their work by acquainting themselves with the language, literature, and civilization of these people.

Students who intend to pursue theological studies are advised to consult the head of the department as to the lines of study which may be pursued with greatest advantage in connection with Semitics, and as a preparation for the work of the theological seminary.

(1) Consultation and enrollment: Oct. 5-6, 9-12 A. M. Room 2, T. H.

(2) All lectures and courses in this department are given in Room 2, T. H.

(3) Students may enter the study of Hebrew in their Sophomore year, and those who intend to enter a theological seminary, or make a special study of Semitics, are advised to begin early in their course.

Students who have taken Hebrew and Hellenistic (New Testament) Greek for four semesters are allowed special privileges in several of the theological seminaries:—

(1) They may graduate in two years, thus saving a whole year, or,

(2) They are permitted to enter upon advanced courses for which they would not, otherwise, be prepared. They are thus enabled to gain a commanding knowledge of the *Literature of the Bible* which is impossible to students who are compelled to spend a large portion of their junior and middle years in the seminary in the purely academic work of learning languages.

a. HEBREW

1. *Genesis,* Baer and Delitzch's Text. Gesenius's *Hebrew Lexicon.* Craig's *Hebrew Word Manual.* Gesenius's *Hebrew Grammar,* edited by Kdutzsch, translated by Collins, twenty-sixth edition. *Three hours.* Professor CRAIG.

3. The minor Prophets, *Amos, Hosea,* and *Isaiah,* Chaps. I-XXXV. *Two hours.* Professor CRAIG.

5. Prophetic literature. *Isaiah,* Chaps. XL-LXVI, and study of the modern literary criticism of the *Book of Isaiah.* Text-books: *Hebrew Bible,* Driver's *Hebrew Moods and Tenses. Two hours, to be arranged.* Professor CRAIG.

SECOND SEMESTER

2. *Deuteronomy, Joshua, I Samuel, Ruth, Jonah.* Theile's *Biblia Hebraica.* Gesenius's *Hebrew Lexicon.* Müller's *Outline of Hebrew Syntax. Three hours.* Professor CRAIG.

4. *Ecclesiastes, Psalms,* or other readings in the Wisdom and Poetic Literature. *Two hours.* Dr. WORRELL.

6. The *Book of Job,* including study of the literary structure and critique of the dominant ideas. Text-books: Baer and Delitzch's Text and Haupt's Polychrome Edition (Text by Siegfried). *Two hours.* Professor CRAIG.

b. ARABIC

FIRST SEMESTER

7. Beginners' Course. Grammar and reading. Socin's *Arabische Grammatik,* fifth ed. *Three hours.* Dr. WORRELL.
9. Native grammatical works: *al-Agurrûmîjah;* the *Durrat al-Gawwâs.* *Two hours.* Dr. WORRELL.

SECOND SEMESTER

8. Continuation of Course 7. Syntax. Reading of easy prose, and of parts of the *Qur'ân.* *Three hours.* Dr. WORRELL.
10. Reading of native commentaries on the *Qur'ân,* or of native Arabian poetry (Nöldeke's *Dilectus Veterum Carminum Arabicorum*). *Two hours.* Dr. WORRELL.

c. ASSYRIAN

FIRST SEMESTER

11. Introduction to Easy Historical Inscriptions from the Ninth Century B. C., with study of the Grammar. Text-book: Delitzch's *Assyrische Lesestücke,* vierte Auflage. *Three hours.* Professor CRAIG.
13. The Babylonian Stories of Creation; the Deluge and the War of Marduk against Tiâmat; lectures on the Cosmology of the Babylonians; Inscription of Tiglathpileser I, cir. 1120 B. C. *Two hours.* Professor CRAIG.

SECOND SEMESTER

12. Historical Inscriptions. Selections from the Cuneiform Inscriptions of Western Asia (R. I-V). *Three hours.* Professor CRAIG.
14. Religious Literature. Texts: King's *The Prayers of the Lifting up of the Hand,* and Craig's *Religious Texts.* *Two hours.* Professor CRAIG.

d. ARAMAIC, SYRIAC AND ETHIOPIC

Courses in Aramaic, Syriac, and Ethiopic are given to students of advanced standing. The Aramaic parts of the *Old Testament* (*Dan.* 2:4-7:28; *Ezra* 4:8-6:18; and 7:12-26) are read in conjunction with the study of Aramaic Grammar. Aramaic and Syriac, Professor CRAIG; Ethiopic, Dr. WORRELL.

e. HELLENISTIC GREEK

In general, it may be said that the work is arranged, as nearly as possible, to meet the needs and wishes of applicants.

It should be borne in mind that one of the most invaluable aids to the study of the diction of the *New Testament* is a knowledge of Hebrew, and that a knowledge of Semitic thought and modes of thought is indispensable to an adequate comprehension of the *New Testament* literature.

FIRST SEMESTER

15. *New Testament. The Acts of the Apostles,* and historical introduction to the Apostolic period. Text-books: Wescott and Hort's *Greek New Testament,* revised edition, with introduction by Ph. Schaff; Winer's *New Testament Grammar;* Blass's *New Testament Grammar;* Thayer's *Greek-English Lexicon. Two hours.* Professor CRAIG.

17. The Gospels according to Mark, Luke, and John, including grammatical study of Hellenistic Greek. Text-books as in Course 15. *Two hours.* Dr. FRENCH.

SECOND SEMESTER

16. *I Corinthians, II Corinthians.* Text-books the same as in first semester. *Two hours.* Professor CRAIG.

18. *I and II Thessalonians, Ephesians, Colossians. Two hours.* Dr. FRENCH.

[20. The Septuagint Version. A study of the language and of the text. If desired, *Josephus* will be substituted. *Two hours.* Professor CRAIG.

Omitted in 1909-1910.]

f. BIBLICAL LITERATURE AND HISTORY

[21. The History of Israel and Judah from the Conquest to the Fall of the Northern Kingdom under Sargon, 722 B. C. *Two hours.* Professor CRAIG.

This course, with its sequel, 22, is based upon the literary analysis of the historical books of the *Old Testament,* and extra-Israelitish sources, especially the monuments of Nineveh and Babylon.

Omitted in 1909-1910.]

23. Study of the Hexateuch.—*Genesis* to *Joshua* inclusive. *Two hours.* Professor CRAIG.

The object of this course is to explain the literary origin of these books and to set forth the conclusions of modern *Old Testament* scholarship respecting them.

25. The Study of Minor Prophets, Amos and Hosea, and of the prophecies of Isaiah (*Isa.,* Chapters 1-35) and of Isaiah's younger contemporary, Micah. *Two hours.* Professor CRAIG.

SECOND SEMESTER

[22. The History of Judah from the Fall of the Northern Kingdom to the Babylon Exile, 586 B. C., and of the Jewish State from (1) the Exile to the establishment of the Congregation under Ezra, 444 B. C., (2) from Ezra until Alexander of Macedon, 336 B. C., (3) from Alexander until Antiochus IV, 175 B. C., (4) from Antiochus IV to the destruction of the state with the Fall of Jerusalem, 70 A. D. *Two hours.* Professor CRAIG.

Omitted in 1909-1910.]

24. The Study of *Deutero-Isaiah* (*Isa.*, Chapters 40-66), *Jeremiah*, *Jonah*, *Nahum*, and *Daniel*. Only one lecture will be devoted to each of the last three books named. *One hour*. Professor CRAIG.

26. The Study of the *Wisdom Literature* of the *Old Testament*, with special discussion of the *Book of Job;* its kinship to and contrasts with the great skeptical dramas of other literatures: The *Prometheus* of Aeschylus, Goethe's *Faust,* and Shakespeare's *Hamlet*. *Two hours*. Professor CRAIG.

27. The Origin of the Gospels, including a brief discussion of the principal manuscripts of the Bible. The object of the course is to set forth the processes, so far as ascertainable, by which the Gospels attained their present state. This involves inquiry into the sources, the various influences, literary and religious, which contributed to the content and form of each, the relative age, etc. This course is recommended to all students interested in the literature of the New Testament as indispensable to a correct historical perspective. *Two hours*. Professor CRAIG.

28. Lectures on the Literature of the *New Testament*. *Two hours*. Professor CRAIG.

An analysis of the Pauline Epistles is given, the fundamental teaching is summarized and the arguments by which the conclusions are reached are clearly set forth. The circumstances under which the churches were founded and the conditions which called forth the letters are discussed. The course is conducted upon historical and literary principles with the sole object of discovering the author's thought.

g. NON-BIBLICAL LITERATURE, HISTORY, AND RELIGION

FIRST SEMESTER

29. Lectures. The beginnings of history and civilization, and the history of Babylonia and Assyria, from the earliest historical period, cir. 4500 B. C., down to the Fall of Nineveh and Babylon. Text-book, *History of Babylonia and Assyria* by Winckler, translated and edited by J. A. Craig. *Two hours*. Professor CRAIG.

This course is based upon the monuments, and offers in outline a history of those ancient peoples, sketching their earliest organization, forms of government, social and religious life, art, science, and literature, showing the conspicuous part they have performed in the history of the world, and the dominance of their influence in our own era.

The lectures will be illustrated by 200 lantern views, numerous photographs, photolithographs, and original tablets and casts.

31. The Religion of the Semites. A general study of Semitic religion, with more especial attention to the religion of the Hebrews and of the Babylonians. *Two hours*. Dr. WORRELL.

This course is especially designed for students of theology and philosophy. It deals with the primitive, and, therefore, historically fundamental concepts of the Semitic religion, out of which grew the three great religions, Judaism, Christianity, and Muhammedanism. It should also prove valuable to students of literature generally, since theology, which is the philosophy of religion, holds so large a place in literature.

33. Lectures on the *Qur'ân* and Muhammedanism. Ancient Arabia. The rise of Islâm. The religion of Islâm. History of the *Qur'ân*. Exegesis of selected surahs of the *Qur'ân* according to native commentators. No knowledge of Arabic is necessary. *Two hours.* Dr. WORRELL.

SECOND SEMESTER

30. The Civilization of Islâm; its history, characteristics, and achievements, with special reference to religion and philosophy. *Two hours.* Dr. WORRELL.

32. Primitive Ideas and Later Development of Semitic Religious Philosophy. The beliefs and practices of Arabs and other Semitic Nomads, and the development of these among the historical Semitic peoples. A study of primitive religious concepts and of their underlying principles. *Two hours.* Dr. WORRELL.

ROMANCE LANGUAGES AND LITERATURES

FRENCH

Courses 1, 2, 3, 4, must precede all others. Students in these courses are expected to remain in the same section throughout the year, and should choose their section accordingly. Students intending to enter upon the study of French at any point of their course will find it greatly to their advantage to do so in their first year.

Courses 5-14 are open only to students who have completed Courses 1-4, or an equivalent. Courses 5 and 6 should be taken by all who wish a firm and sure grasp of the language. Courses 7-14 are intended to give an acquaintance with the most important writers and works of the last three centuries, and at least two of these courses should be completed before any of the more advanced courses are undertaken.

Courses 15-31 are advanced courses for undergraduates and graduates, open only to students who have completed at least four of Courses 5-14, and should be elected only after consultation with the respective instructors.

Students expecting to become teachers of French should consult Professor CANFIELD as soon as possible. Only students who have marked linguistic ability are encouraged to prepare themselves for teaching, and no student who has not been more than ordinarily successful in his work in the department, and acquired more than an average proficiency, will be recommended.

FIRST SEMESTER

1. Elementary Course. Grammar and easy reading, with practice in speaking. Twelve sections. *Four hours.* Professors CANFIELD, EFFINGER, and THIEME, Mr. McLAUGHLIN, Mr. COUSINS, Mr. LYON, and Mr. BURSLEY.

Second year French may be taken as 3, 3*a*, 3*b*, or 3*c*, according to the kind and amount of work desired.

3. Modern Prose and Plays, with practice in speaking and writing French. Four sections. *Four hours.* Professors EFFINGER and THIEME, Mr. COUSINS, and Mr. LYON.

3*a*. Reading of Representative Authors. *Four hours.* Dr. HAMILTON.

3a_1. Reading of Representative Authors. Two sections. *Three hours.* Dr. HAMILTON.

This course is intended for students who do not intend to take more than two years of French, or who wish more especially to become acquainted with French literature. Speaking and writing are not practiced, but effort is directed towards reading as many works as possible of first rate importance.

3*b*. Reading of modern prose and plays, with particular emphasis on writing and speaking French. *Five hours.* Mr. TALAMON.

This course is especially recommended to those who wish a thorough knowledge of the language, and who expect to take Courses 5 and 6.

3*c*. Grammar, Composition and Conversation. Two sections. *Two hours.* Professor THIEME and Mr. TALAMON.

Intended for students who have taken Course 3*a* and who conclude to develop their knowledge of French further.

3*d*. French Conversation. Three sections. *One hour.* Mr. McLAUGHLIN and Mr. TALAMON.

This course accompanies and supplements the other courses of the second year. Stress is laid on the acquirement of a practical and idiomatic vocabulary, a good pronunciation and a correct accent.

5. Prose Composition. Three sections. *Three hours.* Professor THIEME and Mr. TALAMON.

Before electing this course students must consult with the instructor.

7. The Drama of the Seventeenth Century; Corneille, Molière, Racine. *Three hours.* Professor EFFINGER.

[9. French Society and Culture in the Sixteenth, Seventeenth, and Eighteenth Centuries. A survey of the principal factors that contributed to the formation, development, and decay of the classical ideal in French literature. *Two hours.* Professor THIEME.

Omitted in 1909-1910.]

9*a*. History of French Art. Readings, lectures and reports. *Two hours.* Professor THIEME.

11. Voltaire. Reading of selected works, lectures, and reports. *Three hours.* Professor CANFIELD.

13. Hugo and Balzac. Part I. The novels of Victor Hugo, his art and literary methods. Lectures, readings, reports, and discussions. *Two hours.* Mr. McLAUGHLIN.

15. French Writing. Practice in writing idiomatic French. *Two hours.* Mr. TALAMON.

Candidates for this course must have had Courses 5 and 6, or an equivalent.

17. The Dramatic Literature of the Eighteenth Century. A study of the dramatic work of LeSage, Marivaux, Crebillon, Voltaire, Diderot, Nivelle de la Chaussée, Beaumarchais and the minor dramatic authors of the time with reference to the evolution of dramatic form. Lectures in French, with assigned readings and reports. *Two hours.* Professor EFFINGER.

19. Montaigne. A study of selected essays from Montaigne with lectures on the social and literary conditions of the Sixteenth Century. *Two hours.* Professor EFFINGER.

21. The History of the Novel in France. *Two hours.* Professor CANFIELD.

This course will trace the growth of the novel as a form of literature and its various transformations. A number of representative masterpieces of different periods will be read, and both their technical qualities and their relation to the social and intellectual environments of the time will be studied. Particular attention will be given to the preparation and development of the movement of realism in the nineteenth century.

23. History of French Literature in the Seventeenth, Eighteenth and Nineteenth Centuries. A general survey. Lectures, readings, and reports. *Two hours.* Professor CANFIELD.

[25. History of French Literature from its beginnings to Malherbe. For advanced undergraduates and graduates. *Two hours.* Professor CANFIELD.

This course aims to give the student some acquaintance with the main and characteristic forms of the literature of the Middle Ages and of the Renaissance, and of the movement of ideas that found expression in it.

Omitted in 1909-1910.]

27. Proseminary in French Literature. Primarily for graduates. *Two hours.* Professor CANFIELD.

The work will consist in special studies connected with the works of early Romanticism, particularly Victor Hugo.

29. Historical French Grammar, I. Phonology. Lectures, with illustrative Old French readings. For advanced undergraduates and graduates. *Two hours.* Professor CANFIELD.

31. French Versification. A critical and historical study of French verse structure from its origin to the present. Primarily for graduates. *Two hours.* Professor THIEME.

33. Beginnings of Modern Literature. *Two hours.* Dr. HAMILTON.
Candidates for this course must be able to read French readily. A knowledge of German also is desirable.

35. Journal Club. Reviews of results of current research in the field of the Romance languages and literatures, by the instructors of the department and advanced students. Every other week.

SECOND SEMESTER

2. Elementary Course continued. Reading of modern prose and plays, with practice in speaking and composition. Twelve sections. *Four hours.* Professors CANFIELD, EFFINGER and THIEME, Mr. McLAUGHLIN, Mr. COUSINS, Mr. LYON, and Mr. BURSLEY.

Second year French, continued. For explanation of the different courses, see under Course 3, first semester.

4. Modern Prose and Plays, with practice in speaking and writin French. Four sections. *Four hours.* Professors EFFINGER and THIEME, Mr. COUSINS, and Mr. LYON.

4*a*. Reading of Representative Authors. *Four hours.* Dr. HAMILTON.

4a_1. Reading of Representative Authors. Two sections. *Three hours.* Dr. HAMILTON.

4*b*. Reading of modern prose and plays, with particular emphasis on writing and speaking French. *Five hours.* Mr. TALAMON.

4*c*. Grammar, Composition and Conversation. Two sections. *Two hours.* Mr. TALAMON and Mr. LYON.

4*d*. French Conversation. Three sections. *One hour.* Mr. McLAUGHLIN and Mr. TALAMON.
Provision will be made both for those who have taken Course 3*d* and those who have not.

6. Prose Composition. Three sections. *Three hours.* Professor THIEME and Mr. TALAMON.

8. The Dramatic Literature of the Seventeenth Century: Part II. While this course is a continuation of Course 7, it may be elected as an independent course by special permission. The end of Molière's comedy and the tragedy of Racine. *Three hours.* Professor EFFINGER.

[10. Continuation of Course 9. French Society and Culture in the Sixteenth, Seventeenth, and Eighteenth Centuries. *Two hours.* Assistant Professor THIEME.
Omitted in 1909-1910.]

10*a*. History of French Art. Continuation of Course 9*a*. Professor THIEME.

12. Rousseau. Reading of selected works, lectures, reports. *Three hours.* Professor CANFIELD.

14. Hugo and Balzac. Part II. Continuation of Course 13. The novels of Hugo and Balzac compared. Lectures, readings, reports, and discussions. *Two hours.* Mr. McLAUGHLIN.

16. French Writing. Continuation of Course 15. *Two hours.* Mr. TALAMON.

18. The Dramatic Literature of the Nineteenth Century. The Melodramas of Pixérécourt; the Romantic drama; Scribe; the classical reaction; Dumas fils, Angier, Henri Becque and the modern school. Lectures in French with assigned readings and reports. *Two hours.* Professor EFFINGER.

22. The History of the Novel in France. Continuation of Course 21. *Two hours.* Professor CANFIELD.

24. History of French Literature in the Seventeenth, Eighteenth, and Nineteenth Centuries. Continuation of Course 23. *Two hours.* Professor CANFIELD.

[26. The History of French Literature from its beginnings to Malherbe. Continuation of Course 25. Professor CANFIELD. Omitted in 1909-1910.]

28. Proseminary in French Literature. Continuation of Course 27. *Two hours.* Professor CANFIELD.

30. Historical French Grammar, II. Morphology. Lectures. *Two hours.* Professor CANFIELD.

[32. Provençal. Outline of the Grammar, with readings in Appel's *Provenzalische Chrestomathie. Two hours.* Dr. HAMILTON. Omitted in 1909-1910.]

34. Beginnings of Modern Literature. Continuation of Course 33. *Two hours.* Dr. HAMILTON.

36. Teachers' Course. A general view of the elements of grammar from the standpoint of the needs of elementary instruction. *One hour.* Professor CANFIELD.

ITALIAN

FIRST SEMESTER

1. Italian Grammar. Easy Prose. *Three hours.* Mr. McLAUGHLIN.

3. Dante. *La Vita Nuova* and *La Divina Commedia* Lectures and recitations. *Two hours.* Dr. HAMILTON.

SECOND SEMESTER

2. Continuation of Course 1. Modern readings. *Three hours.* Mr. McLAUGHLIN.

4. Dante. *La Divina Commedia.* Continuation of Course 3. Lectures and recitations. *Two hours.* Dr. HAMILTON.

SPANISH

FIRST SEMESTER

1. Elementary Course. Grammar and easy reading. Three sections. *Four hours.* Assistant Professor Wagner and Mr. Lyon.

Students who have had no French or Latin should consult the instructor before electing Spanish 1. No student is allowed to begin the study of any other language at the same time with Spanish.

3. Authors of the Nineteenth Century. Reading of selected works by Larra, Becquer, Alarcón, Pérez Galdós and Palacios Valdés. *Two hours.* Assistant Professor Wagner.

5. Composition and Conversation. *Two hours.* Assistant Professor Wagner.

Course 5 must be preceded by Courses 1 and 2 or their equivalent.

Courses 3 and 5 may be conveniently taken together, and it is advised that this be done when possible.

4. The *Don Quixote.* The greater part of this text is read in the class, and discussed in its relation to Spanish life and literature of the Golden Age. *Two hours.* Assistant Professor Wagner.

Open to students who have completed Course 3*a* or the equivalent.

4*a*. The Drama of the Seventeenth Century. *Two hours.* Assistant Professor Wagner.

Open to students who have completed Courses 4 and 4*b*, or an equivalent.

7. Outlines of the History of Spanish Literature. *One hour.* Assistant Professor Wagner.

Primarily a graduate course. May be elected only after consultation with the instructor.

9. Old Spanish Grammar and Readings. *One hour.* Assistant Professor Wagner.

Primarily a graduate course. May be elected only after consultation with the instructor.

SECOND SEMESTER

2. Elementary Course. Continuation of Course 1. Reading of modern prose, with practice in speaking and writing. Three sections. *Four hours.* Assistant Professor Wagner and Mr. Lyon.

3*a*. Authors of the Nineteenth Century. Continuation of Course 3. *Two hours.* Assistant Professor Wagner.

6. Composition and Conversation. Continuation of Course 5. *Two hours.* Assistant Professor Wagner.

4*b*. The *Don Quixote.* Continuation of Course 4. *Two hours.* Assistant Professor Wagner.

4*c*. The Drama of the Seventeenth Century. Continuation of Course 4*a*. *Two hours.* Assistant Professor WAGNER.

8. Outlines of the History of Spanish Literature. Continuation of Course 7. *One hour.* Assistant Professor WAGNER.

10. Old Spanish Grammar and Readings. Continuation of Course 9. *One hour.* Assistant Professor WAGNER.

GERMANIC LANGUAGES AND LITERATURES

GERMAN

Courses 1, 2, 3, and 4, or their equivalent, must precede all others. The work in these courses is laid out on the basis of an entire academic year, and it is expected that the student will not change instructor or section at the end of the first semester. Students intending to begin the study of German in the University are strongly advised to do so in their first year.

Courses 5-12 are open to all students who have successfully completed Courses 1-4, or their equivalent. Courses 13-42 are advanced undergraduate and graduate courses, and should be elected only after consultation with the instructors.

Students who have had one year of German in the high school and wish to pursue the study in the University should elect Course 2.

Students who have had two years of German in the high school should elect Course 3 or 3*a*.

Students who have had three years of German in the high school should usually elect Course 4. In some cases, however, it may be more advisable for them to elect Course 5*a*, or some other junior electives. All such students are therefore urged to consult the head of the department in regard to their elections in German.

Students who have had four years of German in the high school are strongly advised to elect Course $5a_1$. They may, however, upon consultation with the head of the department elect also from Courses 5*b*, 5*c*, 5*d*, 7*b*, 9, and 9*b*.

Students intending to prepare themselves to teach German are strongly advised to elect at least one course under 5 and 6, and Courses 9, 10, 13, 14, 17, 18, and 26. All such students are urged to consult the head of the department as soon as possible for the more careful adjustment of their work in German.

FIRST SEMESTER

1. Elementary Course. Pronunciation, grammar, easy readings, with practice in speaking and writing German. Seven sections. *Four hours.* Professors DIEKHOFF and HILDNER, Mr. DIETERLE, Dr. HOLLANDER, and Dr. HAUPT.

2. Elementary Course. Continuation of Course 1. Grammar, descriptive prose, short stories, with practice in speaking and writing German. *Four hours.* Mr. KLOCKSIEM.

3. Modern Prose, narrative and dramatic, with practice in speaking and writing German. Eight sections. *Four hours.* Assistant Professors Florer and Eggert, Mr. Dieterle, Dr. Hollander, and Dr. Haupt.

3*a*. German Prose. Readings from Representative Modern Authors. *Four hours* Dr. Scholl.

This course is designed for students who do not intend to carry on more extensive work in the German language and literature, but wish primarily to acquire facility in reading modern German.

4. Two dramas of Lessing, Schiller or Goethe with collateral reading and practice in speaking and writing German. *Four hours.* Mr. Klocksiem.

5. Third-year Electives. These may be taken as:

5*a*. Schiller's *Wallenstein.* Three sections. *Three hours.* Professor Winkler, and Assistant Professors Boucke and Eggert.

5a_1. Schiller's *Wallenstein* and Exercises in Composition. *Four hours.* Dr. Scholl.

5*b*. Goethe's *Götz von Berlichingen* and *Leiden des jungen Werthers. Two hours.* Professor Hildner.

5*c*. Schiller's *Jungfrau von Orleans. Two hours.* Assistant Professor Florer.

5*d*. Selections from Goethe's Prose. *Two hours.* Dr. Scholl.

[7. Contemporary German Novels. Sudermann, Frenssen, Otto Ernst, etc. Assistant Professor Florer.

Omitted in 1909-1910.]

7*a*. Contemporary German Dramas. Sudermann, Heyse, etc. *Two hours.* Assistant Professor Florer.

7*b*. German Historical Prose. Selected readings from standard German historians. *Two hours.* Dr. Scholl.

This course is designed especially for the needs of students in History and Political Science.

7*c*. Selected Readings from German Writers on Education from Luther to 1800. Lectures, discussions and reports. *Two hours.* Assistant Professor Florer.

9. German Composition. Six sections. *Two hours.* Professor Hildner, Assistant Professors Boucke and Eggert, Dr. Scholl, and Mr. Dieterle.

9*a*. Advanced German Composition. *Two hours.* Assistant Professor Boucke.

9*b*. German Conversation. Three sections. *Two hours.* Mr. Dieterle, and Dr. Haupt.

11. Studies in Schiller's *Wilhelm Tell.* Intended primarily for students preparing themselves to teach German. *Two hours.* Professor Hildner.

13*b*. Reviews and Practical Exercises in German Grammar. Two sections. *One hour.* Mr. Prall.

13. A Systematic Study of Modern German Grammar. This course is intended primarily for students preparing themselves to teach German. Lectures and discussions. *Two hours.* Professor DIEKHOFF.

15. Goethe's *Faust,* Part I. Lectures and recitations. Thomas's edition. *Two hours.* Professor WINKLER.

17. History of German Literature. From the earliest times to the end of the Middle Ages. Lectures and Thomas's Anthology of German Literature. *Two hours.* Professor WINKLER.

19. The Beginnings of the Romantic Movement in Germany in its relation to the social, political, and philosophical thought of the times. *Two hours.* Professor WINKLER.

19*a*. History of German Literature from 1848 to 1900. Lectures, discussions and reports. Advanced course open to undergraduates and graduates. *Two hours.* Assistant Professor BOUCKE.

21. Heinrich Heine. A comprehensive study of his life and works. Lectures and reports on assigned topics. Advanced course open to undergraduates and graduates. *Two hours.* Assistant Professor BOUCKE.

23. The Dramatic Works of Friedrich Hebbel. Lectures and reports on assigned topics. Advanced course open to undergraduates and graduates. *Two hours.* Professor HILDNER.

24. Studies in the History of the German Novel, with special emphasis upon Goethe's *Wilhelm Meister.* Discussions and reports. Advanced course open to undergraduates and graduates. *Two hours.* Assistant Professor FLORER.

[25. The Life and Works of Luther. Lectures and assigned readings. Advanced course open to undergraduates and graduates. Assistant Professor FLORER.
Omitted in 1909-1910.]

27. Introduction to Middle High German. Lectures and recitations. Paul's *Mittelhochdeutsche Grammatik* and Bachmann's *Mittelhochdeutsches Lesebuch.* Open to undergraduates and graduates. *Two hours.* Professor DIEKHOFF.

27*a*. Studies in *Parzival.* Primarily for graduates. *Two hours.* Professor DIEKHOFF.

29. Old High German. Lectures based upon Braune's *Abriss der Althochdeutschen Grammatik* 2te Aufl., and reading of selections from Braune's *Althochdeutches Lesebuch,* 4te Aufl. Primarily for graduates. Professor DIEKHOFF.

31. Old Saxon. Lectures and recitations. Holthausen's *Altsächsisches Elementarbuch,* and Behagel's *Heliand. Two hours.* Primarily for graduates. Mr. DIETERLE.

33. Studies in the Philosophical Writings of Schiller. Lectures and discussions. Advanced course open to undergraduates and graduates. *Two hours.* Professor WINKLER.

34. German Art and Culture of the Sixteenth Century. Lectures, assigned readings and reports. The course is illustrated with the stereopticon. Open to undergraduates and graduates. *Two hours.* Assistant Professor **Boucke.**

39. Proseminaries in the German Classics. A comprehensive study of the lives and works of Lessing, Goethe, and Schiller. Primarily for graduates. *Two hours.*
    a. Lessing. Professor **Diekhoff.**
    b. Goethe. Assistant Professor **Boucke.**
    c. Schiller. Professor **Winkler.**

39*a*. Proseminary in the Storm and Stress Movement. Primarily for graduates. *Two hours.* Professor **Hildner.**

41. History of the German Language. Primarily for graduates. *Two hours.* Professor **Diekhoff.**

SECOND SEMESTER

1. Elementary Course. Pronunciation, grammar, easy readings, with practice in speaking and writing German. *Four hours.* Mr. ——————.

2. Elementary Course. Continuation of Course 1. Grammar, descriptive prose, short stories, with practice in speaking and writing German. Six sections. *Four hours.* Professors **Diekhoff** and **Hildner,** Mr. **Dieterle,** Dr. **Hollander,** and Dr. **Haupt.**

3. Modern Prose, narrative and dramatic, with practice in speaking and writing German. *Four hours.* Mr. **Klocksiem.**

4. Two dramas of Lessing, Schiller or Goethe, with collateral reading and practice in speaking and writing German. Eight sections. *Four hours.* Assistant Professors **Florer** and **Eggert,** Mr. **Dieterle,** Dr. **Hollander,** and Dr. **Haupt.**

4*a*. Readings from Representative Modern Authors. Continuation of Course 3*a*. *Four hours.* Dr. **Scholl.**

6. Third-year Electives. These may be taken as:

6*a*. Goethe's *Iphigenie, Tasso,* and *Hermann und Dorothea*. Three sections. *Three hours.* Professor **Winkler,** and Assistant Professors **Boucke** and **Eggert.**

6a_1. Goethe's *Iphigenie, Tasso* and *Hermann und Dorothea,* and Exercises in Composition. *Four hours.* Dr. **Scholl.**

6*b*. Lessing's *Nathan der Weise*. *Two hours.* Assistant Professor **Florer.**

6*c*. Lessing's *Laokoon*. A study of Lessing's essay with comparison of the critiques of Herder and Goethe. *Two hours.* Professor **Hildner.**

6*d*. Selected Dramas of Heinrich von Kleist and Grillparzer. *Two hours.* Dr. **Scholl.**

[8. Contemporary German. Continuation of Course 7. Selected readings from the works of Frenssen, Rosegger, Huch, etc. Assistant Professor **Florer.**
Omitted in 1909-1910.]

8*a*. Contemporary German Dramas. Hauptmann, Arno Holz, etc. *Two hours.* Assistant Professor FLORER.

8*b*. German Historical Prose. Continuation of Course 7*a*. *Two hours.* Dr. SCHOLL.

8*c*. Selected Readings from German Writers on Education, 1800 to 1909. Lectures, discussions, and reports. *Two hours.* Assistant Professor FLORER.

[8*d*. German Lyrics Lyrics of Goethe, Schiller, Heine, Uhland and Geibel. Assistant Professor EGGERT.
Omitted in 1909-1910.]

10. German Composition. Six sections. *Two hours.* Professor HILDNER, Assistant Professors BOUCKE and EGGERT, Dr. SCHOLL, and Mr. DIETERLE.

10*a*. Advanced Prose Composition. *Two hours.* Assistant Professor BOUCKE.

10*b*. German Conversation. Three sections. *Two hours.* Mr. DIETERLE and Dr. HAUPT.

12. Studies in Lessing's *Minna von Barnhelm* and Goethe's *Hermann und Dorothea.* Intended primarily for students preparing themselves to teach German. *Two hours.* Professor HILDNER.

14*b*. Reviews and Practical Exercises in German Grammar. Continuation of Course 13*b*. Three sections. *One hour.* Mr. PRALL and Mr. WILLIAMS.

14. A Systematic Study of Modern German Grammar. Continuation of Course 13. Intended primarily for students preparing themselves to teach German. Lectures and discussions. *Two hours.* Professor DIEKHOFF.

16. Goethe's *Faust,* Part II. Continuation of Course 15. Thomas's edition. Professor WINKLER.

18. History of German Literature. From Luther to the death of Lessing. Continuation of Course 17. Lectures and selected readings. Professor WINKLER.

20. History of German Literature of the Nineteenth Century down to the Revolution of 1848. Continuation of Course 19. *Two hours.* Professor WINKLER.

20*a*. History of German Literature from 1848 to 1900. Continuation of Course 19*a*. Lectures, reports and discussions. *Two hours.* Assistant Professor BOUCKE.

21*a*. Heinrich Heine. His life and works. Continuation of Course 21. Lectures and reports on assigned topics. *Two hours.* Assistant Professor BOUCKE.

[22. Lessing's *Hamburgische Dramaturgie.* *Two hours.* Professor HILDNER.
Omitted in 1909-1910.]

23*a*. The Dramatic Works of Friedrich Hebbel. Continuation of Course 23. Lectures and reports on assigned topics. *Two hours.* Professor HILDNER.

24b. Studies in the History of the German Novel. Goethe. Discussion and reports. Advanced course open to undergraduates and graduates. *Two hours.* Assistant Professor **Florer.**

[*25a.* The Life and Works of Luther. Lectures and assigned readings. Continuation of Course 25. Assistant Professor **Florer.**
Omitted in 1909-1910.]

26. Teacher's Course. Lectures and discussions on methods of teaching German and organization of courses. *One hour.* Professor **Winkler.**

28. The Middle High German Folk-Epic. Lectures and reading of portions of the *Nibelungenlied, Gudrun,* and minor epics. Continuation of Course 27. *Two hours.* Professor **Diekhoff.**

28a. Studies in *Parzival.* Primarily for graduates. Continuation of Course *27a.* *Two hours.* Professor **Diekhoff.**

30. Old High German. Readings from Otfrid's *Evangelienbuch* and lectures on Old High German Literature. Primarily for graduates. Continuation of Course 29. *Two hours.* Professor **Diekhoff.**

32. Old Saxon. Continuation of Course 31. *Two hours, to be arranged.* Mr. **Dieterle.**

33a. Studies in the Philosophical Writings of Schiller. Continuation of Course 33. Advanced course open to undergraduates and graduates. *Two hours.* Professor **Winkler.**

34a. German Art and Culture of the Nineteenth Century. Lectures, assigned readings and reports. The course is illustrated with the stereopticon. Open to undergraduates and graduates. *Two hours.* Assistant Professor **Boucke.**

[37. The Elements of Phonetics with special reference to the sounds of German, French, etc. *Two hours.* Assistant Professor **Eggert.**
Omitted in 1909-1910.]

40. Proseminaries in the German Classics. Continuation of Course 39. Primarily for graduates. *Two hours.*
    a. Lessing. Professor **Diekhoff.**
    b. Goethe. Assistant Professor **Boucke.**
    c. Faust. Professor **Winkler.**

40a. Proseminary in the Storm and Stress Movement. Continuation of Course *39a.* Primarily for graduates. *Two hours.* Professor **Hildner.**

42. History of the German Language. Continuation of Course 41. Professor **Diekhoff.**

Journal Club:—

Current Literature on German Philology and Literature. Meetings of instructors and advanced students in the German department are held every two or three weeks throughout the year, at which reports are made on important contributions to Germanic philology and literature.

GOTHIC

FIRST SEMESTER

1. Lectures on Phonology and Morphology and reading of the Gospels. Wright's *Primer of the Gothic Language. Two hours.* Assistant Professor Eggert.

SECOND SEMESTER

2. The Epistles. Heyne's *Ulfilas,* 9te Aufl. *Two hours.* Assistant Professor Eggert.

OLD ICELANDIC

FIRST SEMESTER

[1. Old Icelandic. Introductory Course. Lectures and recitations. Kahle's *Altisländisches Elementarbuch. Two hours.*
Omitted in 1909-1910.]

SECOND SEMESTER

[2. The Elder Edda. Jonson, *Eddalieder. Two hours.*
Omitted in 1909-1910.]

SCANDINAVIAN

FIRST SEMESTER

1. Modern Norwegian. Introductory Course. Grammar and easy readings, with practice in speaking and writing. *Two hours.* Dr. Hollander.
3. Selected Readings from Modern Norwegian and Swedish Authors (Ibsen, Björnson, Tegnér). Practice in speaking and writing. *Two hours.* Dr. Hollander.

SECOND SEMESTER

2. Modern Norwegian. Continuation of Course 1. Grammar, reading of modern prose, with practice in speaking and writing. *Two hours.* Dr. Hollander.
4. Modern Norwegian Literature. Continuation of Course 1. Lectures, discussions and reports. *Two hours, arranged.* Dr. Hollander.

ENGLISH

Courses 11, 12, and 14 are conducted on the seminary plan, the class being divided into small sections for the presentation of theses and reports, and for extempore discussion and conference. These courses are designed for advanced students only, and are usually taken by students in their last year of residence at the University.

Courses 3, 8, 10, 10*a,* 11, 12, 14, 15, 16, 17, 18, 18*a,* 20, 21 and 23 will ordinarily be found suitable for graduate students as well as for undergraduates. In the case of students who have taken these courses for their first degree, special advanced courses are arranged for graduate study, after conference with the candidate. Some of the courses given in recent years are the following: The English Satirists of the Sixteenth, Seventeenth, and Eighteenth Centuries; The Romantic Revival in England in the Eighteenth Century; The Rise and Development of the English Chronicle Play; Elizabethan Comedy; Elizabethan Tragedy.

Students who aim to prepare for teaching English and Rhetoric in the schools are advised to take Courses 1, 2, 4, 5, and 7 in English, and Courses 3, 4, and 6 in Rhetoric.

Courses 1 and 2 will satisfy the new requirement in English in the literary-law course and in the commercial course. Other courses may be substituted for these on consultation with the head of the English department.

Consultation Hours.—During the first two weeks of the first semester Professor DEMMON will be in Room 10, T. H., at 4 P. M. each day to confer with students concerning their work. Hours for the remainder of the year will be posted later.

Professor TATLOCK—The first week of each semester: every day at 4. Room L, U. H.

Assistant Professor TILLEY—The first week of each semester: every day at 5. Room L, U. H.

FIRST SEMESTER

1. English Literature. Historical Outline, with assigned readings. Five sections. *Three hours.* Assistant Professor TILLEY, Mr. HUMPHREY, and Mr. GINGERICH.

   This course (together with Course 2) is designed to give a general introduction to the subject, preparatory to a more minute study of special periods.

3. Anglo-Saxon. *Three hours.* Professor TATLOCK.

   Course 3 aims to give some understanding of the development and continuity of the English language, some acquaintance with Anglo-Saxon literature, and a reading knowledge of West-Saxon prose. This course (together with Course 8) will be found advantageous for all who wish more than an elementary acquaintance with English philology or literature.

4. English Literature. Shakespeare. A critical reading of five representative plays. Lectures on the history of the Text. *Two hours.* Professor DEMMON.

   Course 4 must be preceded by Courses 1 and 2 or an equivalent. A second section will be formed if called for.

5. English Literature. Chaucer. Two sections. *Two hours.* Professor TATLOCK.

   The General Prologue and six of the Canterbury Tales will be read in the class-room, with attention to language and antiquities, and with the purpose of giving an intelligent appreciation of Chaucer and his age. Most of Chaucer's poems will be read outside by the students, and occasional lectures will be delivered.

5*a*. English Literature. From the Renaissance to the death of Spenser. *Three hours.* Assistant Professor TILLEY.

[6. English Literature. From Milton to Pope. *Three hours.* Professor STRAUSS.

Omitted in 1909-1910.]

7. The History of the English Language. *Two hours.* Assistant Professor TILLEY.

This course will be introduced by a study of the elements of Anglo-Saxon.

10. Poetics. The Epic and the Lyric. Lectures and discussions. *One hour.* Professor DEMMON.

Course 10 is especially designed to accompany Course 11.

11. English Literature. Study of Masterpieces: Spenser's *Faery Queen;* Shakespeare's *Sonnets;* Milton's *Paradise Lost* and *Paradise Regained;* Dryden's *Satires;* Wordsworth's *Prelude* and *Excursion;* Tennyson's *Maud* and *Idylls of the King;* Browning's *The Ring and the Book.* *Two hours.* Professor DEMMON and Mr. GINGERICH.

Open to graduate students and to others who receive permission.

Each member of the class is expected (1) to present an essay upon an assigned masterpiece; (2) to read the entire list of works with which the course deals, together with such critical literature on each subject as there may be time for; (3) to participate each week in a general extempore discussion of the work in hand.

13. English Literature. Introduction to the Poetry of Browning. *Three hours.* Mr. GINGERICH.

A study of selections from the *Dramatic Lyrics, Dramatic Romances, Men and Women, Dramatis Personae,* and of one or two of the dramas.

15. English Literature. The Thirteenth and Fourteenth Centuries. *Two hours.* Professor TATLOCK.

Course 15 is open to those who take, or have taken, a course in Chaucer, and to others who receive permission. It will deal mainly with pre-Chaucerian Middle English literature, and will consist in lectures and outside reading, with the purpose of illustrating Chaucer and the Middle Ages. Mediæval literature will be classified according to its various *genres* and origins; an account will be given of twelfth century Latin literature, of the chronicles, of the origins of the Arthurian and other romantic material, of the fabliaux, legends, and the like.

[16. English Literature. From Chaucer to the Renaissance. *Two hours.* Professor TATLOCK.

The course in Chaucer is recommended as a preparation for this course. It will consist of lectures and outside reading on Chaucer, Gower, Langland, Mandeville, Malory, Skelton, the Scottish poets of the fifteenth and sixteenth centuries, and other writers, and on the native origins of the English drama. Omitted in 1909-1910.]

17. Studies in the text of Shakespeare. *Two hours.* Professor DEMMON.

Course 17 is designed principally for graduate students. The aim will be to illustrate the methods of textual study as applied to a play like *Hamlet,* and the difficulties to be overcome in establishing a text. The McMillan Shakespeare Library affords a very full apparatus for these studies.

18. English Literature. The Development of the English Novel. *Two hours.* Mr. GINGERICH.

A study of the rise of the novel in England as an art form, with an attempt to discover the principle of its development.

24. The English Bible, its literary aspects and influence. *Two hours.* Professor DEMMON and Mr. HUMPHREYS.

The King James Version will be used in class. A leading aim of this course (together with Course 25) will be to acquaint the student with the Scripture Story as material for literary allusion and illustration. The course may be taken in connection with or following Course 1.

26. English Literature. Ben Jonson. *Two hours.* Assistant Professor TILLEY.

The course will consist of the critical reading of three of Jonson's representative plays, together with lectures on his relation to Shakespeare and other contemporary dramatists:

SECOND SEMESTER

2. English Literature. Historical Outline, with assigned readings. Five sections. *Three hours.* Assistant Professor TILLEY, Mr. HUMPHREYS, and Mr. GINGERICH.

4*a*. English Literature. Shakespeare. A critical reading of four plays. *Two hours.* Assistant Professor TILLEY.

5*b*. English Literature. From the death of Spenser to the Restoration. *Three hours.* Assistant Professor TILLEY.

[6*a*. English Literature. From Pope to Wordsworth. *Three hours.* Professor STRAUSS.

Omitted in 1909-1910.]

[6*b*. English Literature. From Wordsworth to Tennyson. *Three hours.* Professor TATLOCK.

The course will consist of lectures and outside reading, with recitations on both.

Omitted in 1909-1910.]

6*c*. English Literature. The Victorian Age. *Three hours.* Professor TATLOCK.

Lectures and outside reading, with recitations on both.

8. Anglo-Saxon Poetry. *Three hours.* Professor TATLOCK.
A selection of epic and lyric poetry will be read, including *Beowulf* or some of the Cynewulfian poems. The course presupposes a reading knowledge of West-Saxon prose.

9. The History of the English Language. *Two hours.* Assistant Professor TILLEY.
Course 9 is a continuation of Course 7.

10*a*. Poetics. The Drama. Lectures and discussions. *One hour.* Professor DEMMON.
Course 10*a* is especially designed to accompany Course 12.

10*b*. English Literature. Dramatic Technique. *One hour.* Professor DEMMON.
Course 10*b* is open to those who receive special permission.

12. Shakespeare Seminary. Plays selected: *A Midsummer Night's Dream; The Merchant of Venice; As You Like It; The Tempest; Richard III;* the two parts of *Henry IV; Henry V; Romeo and Juliet; Hamlet; Othello; King Lear; Macbeth; Coriolanus. Two hours.* Professor DEMMON and Mr. GINGERICH.
Open to graduate students and to others who receive permission. The method is similar to that pursued in Course 11.

14. American Literature. Authors studied: Irving, Cooper, Bryant, Emerson, Hawthorne, Longfellow, Whittier, Poe, Holmes, Thoreau, Lowell, Taylor, Howells, and James. *Two hours.* Professor DEMMON.
Course 14 is open to graduate students and to others who receive permission. Representative works of the authors named are studied and compared with masterpieces of British authors, and an attempt is made to discover the distinctively American element.

18*a*. English Literature. Prose fiction of the Nineteenth Century. *Two hours.* Mr. GINGERICH.
Course 18*a* is a continuation of Course 18. Open to students who have completed Course 18, and to others who receive special permission.

19. English Literature. A study of poetic forms (Epic, Lyric, Drama) as illustrated in the works of Tennyson, Arnold, Morris, Rossetti, and Swinburne. Introduction to the study of English metres. *Three hours.* Professor DEMMON.
This course must be preceded by Courses 1 and 2 or an equivalent.

20. English Literature. The English Drama before Shakespeare. *Two hours.* Assistant Professor TILLEY.

21. English Literature. Chaucer. *Two hours.* Professor TATLOCK.
The purpose of Course 21 will be to give a more intimate acquaintance with Chaucer than can be gained from Course 5. The course must be preceded by Course 5, or an equivalent, and is intended for graduate students, and for undergraduates who receive permission.

[22. English Literature. Contemporary Drama. *Two hours.* Professor STRAUSS.

Course 22 is open only to those who receive special permission. Omitted in 1909-1910.]

[23. Middle English. *Two hours.* Professor TATLOCK.

The course will consist of the reading in class of the selections from early prose and verse in Professor Emerson's *Middle English Reader;* the requisite attention will be paid to the language itself. The course may advantageously be preceded by a course in Chaucer or in Anglo-Saxon.

Omitted in 1909-1910.]

25. The English Bible, its literary aspects and influence. *Two hours.* Professor DEMMON and Mr. HUMPHREYS.

Course 25 is a continuation of Course 24.

RHETORIC

Courses 1 and 2 are required of all first-year students, and must precede all other courses.

The courses offered in this department are of three principal kinds: (1) Courses intended primarily to give the student practice in the leading types of prose composition. These include Courses 1, 2, 3, 4, 13, 14, and 20. (2) Courses intended primarily to familiarize the student with the fundamental principles of Rhetoric and Criticism. These include Courses 5, 7, 8, 9, 10, 12, 15, 16, 21 and 22. Courses 7, 8, 12, 23, and 24 combine advanced composition with the study of rhetorical and critical theory. (3) Course 6, designed primarily for students who intend to teach.

Courses 1 and 2 are introductory in character. They aim to promote clearness and correctness of expression through practice in the simpler kinds of composition. Courses 3 and 4, in which there is systematic practice in the four principal types of prose composition, are intended to follow Course 2, and are usually taken in the second year. Courses 5, 12, 14 and 20, being still more advanced, belong naturally in the third year. In Courses 7 and 8 it is assumed that the student has already acquired considerable proficiency in composition and is prepared to give attention chiefly to the discussion of principles. Courses 9 and 10 are planned solely for students who are working for the higher degrees, though seniors are sometimes admitted to them by special permission.

The advanced and graduate courses presuppose an acquaintance with the fundamental principles of rhetoric and a reasonable proficiency in the technique of prose. The study of composition, except where it is pursued with reference to the theory of teaching, is regarded as an undergraduate study.

Students in the combined Literary and Law Course should elect Courses 1, 2, 3, and 4, though Course 14 may, with permission of the instructor, be substituted for Course 3 or Course 4.

Consultation Hours.—Professor SCOTT may be consulted in Room 6, West Hall, from 8:30 to 9 A. M. on Monday, Tuesday, Wednesday, and Thursday; Assistant Professor RANKIN, *Tu, Th,* 2-4, Room 5*a*, W. H.; Dr. BOHN, *Tu, Th,* 11-12, *W,* 2-3, Room 5*a*, W. H.; Mr. BRUMM, *M,* 4-6, Room 5*a*, W. H.; Mr. HESSLER, *W,* 3-4, 4:30-5:30, Room 3, W. H.; Mr. TOMPKINS, *F,* 4-6, Room 5*a*, W. H.; Dr. MALLORY, *Sat,* 10-12, Room 5*a*, W. H.; Mr. CONLEY, *M, W, F,* 3-4, Room 1, W. H.; Mr. COWDEN, *Tu,* 4-6, Room 5*b*, W. H.

FIRST SEMESTER

1. Composition and Rhetoric. Nineteen sections. *Three hours.* Dr. BOHN, Mr. BRUMM, Mr. HESSLER, Mr. TOMPKINS, Dr. MALLORY, Mr. CONLEY, and Mr. COWDEN.

2. Continuation of Course 1. This course is the same as Course 2 given in the second semester. It is open only to students who have already completed Course 1, or have received credit for it. Students who need three hours to complete the requirement in Rhetoric for graduation are expected to take Course 2 in the first semester, as the sections given in the second semester are not open to such students. *Three hours.* Assistant Professor RANKIN.

3. Advanced Composition and Rhetoric. Essays in description and narrative. Four sections. *Three hours.* Assistant Professor RANKIN and Dr. BOHN.

5. Principles of Style. *Two hours.* Mr. TOMPKINS.

   This course is intended to meet the needs of the student in two respects; namely, to open the way to the study of criticism through practice in observing the details of literary workmanship, and to afford such a concrete and practical view of the principles of good writing as may help the student to better his own expression.

7. Interpretations of Literature and Art. Two sections. *Two hours.* Professor SCOTT.

   The first weeks of the course are given to a discussion of critical principles. These principles are then applied in the appreciation and interpretation of specimens of literature and art.

   Open only to students who have permission. The course is conducted as a seminary.

9. Seminary in Rhetoric and Criticism. *Two hours.* Professor SCOTT.

   The subjects of discussion vary from year to year. Among the problems to be investigated are the following: The origins of prose; the nature and origin of the leading types of discourse; the psychology of figures of speech; the rhythm of prose; the sociological basis of the principles of usage; the origin, development, and laws of the process of communication.

   Open only to graduates.

13. Newspaper Writing: Theory and Practice. Lectures, discussions, and practical work. *Two hours.* Professor Scott.

This course is intended for students who are preparing to do newspaper work. It is conducted as a seminary and is open only to students who obtain special permission.

In the course of the semester the class will edit and publish several numbers of a daily paper.

A course in technical journalism is offered in the Department of Engineering. See the Engineering Announcement.

14. The Theory and Practice of Argumentation. *Three hours.* Mr. Brumm.

A study of the principles which underlie argument. Particular attention will be paid to the brief, and the relative value of various forms of proof. This course is intended for those who desire special training in argumentation. Open only to students who receive permission.

21. Studies in Diction and Usage. *Two hours.* Dr. Bohn.

A functional and structural analysis of specimens of discourse with ultimate reference to the meanings and values of words. Other subjects which will be touched upon are: the organizing principle of discourse, the laws of usage, and the relation of choice of words to style.

23. Seminary in Advanced Composition. *Two hours.* Professor Scott.

This course is intended for a limited number of advanced students who write with facility and are in the habit of writing, but who desire personal criticism and direction. Although the greater part of the time will be spent in the discussion of the manuscripts submitted for correction, there will be talks upon the essentials of English Composition and the principles of criticism and revision. Open only to students who receive special permission.

SECOND SEMESTER

2. Composition and Rhetoric. *Three hours.*

Continuation of Course 1. The hours and instructors are the same as in Course 1, the first semester. Students cannot change from one section to another at the beginning of the second semester without obtaining special permission. See under Course 2 in the first semester.

1. Same as Course 1 given in the first semester. Open only to students entering college at the beginning of the second semester, and those who fail to receive credit in Course 1 in the first semester. *Three hours.* Assistant Professor Rankin.

4. Advanced Composition and Rhetoric. Essays in Exposition and Argument. Four sections. *Three hours.* Assistant Professor Rankin and Dr. Bohn.

6. Teachers' Course. Seminary in methods of teaching English Composition and Rhetoric. Two sections. *One hour.* Professor Scott.

   Course 6 must be preceded by Course 3 or Course 4. It is taken preferably in the senior year.

8. Prose Fiction. Two sections. *Two hours.* Professor Scott.

   Studies in the structure and function of the leading types of prose fiction, including the short story.

   Open only to students who have permission. The course is conducted as a seminary.

10. Seminary in Rhetoric and Criticism. *Two hours.* Professor Scott.

    Continuation of Course 9. Open only to graduate students.

12. Reviews. Essays, readings, and discussions. *Two hours.* Mr. Tompkins.

    The aim of this course is to give practice, under direction, in the writing of book-reviews for newspapers and magazines. Standards of criticism and methods of reviewing will be studied, and specimen reviews will be analyzed in detail.

20. Short Story Writing. *Two hours.* Assistant Professor Rankin.

    Analytic studies in the technique of the short story will be accompanied by constructive work in story writing.

22. The Essay. A course in the study of the essay as a literary type. An attempt will be made to discover the causes of its appearance and to trace the changes which have marked its evolution. The examples for reading and discussion will be chosen from the works of the following authors: Bacon, Swift, Addison, Johnson, Goldsmith, Lamb, Hazlitt, Macaulay, Carlyle, Emerson, Matthew Arnold, Ruskin, and Stevenson. *Two hours.* Dr. Bohn.

24. Seminary in Advanced Composition. *Two hours.* Professor Scott.

    Continuation of Course 23. Open only to students who receive special permission.

ORATORY

Students who desire practice in public speaking in addition to that offered in the class room are recommended to join a literary society and take part in the debates and oratorical contests provided by the Oratorical Association. For information regarding the contests of the Northern Oratorical League, the Intercollegiate Peace Association, and the Central Debating League, and the medals and testimonials offered, see Calendar or consult with the instructors of this department.

Those interested in public speaking who wish to acquire exceptional proficiency should begin class work early in their college course.

Students preparing themselves to teach oratory are advised to take eighteen hours of work in the department, selected after consultation with the professor in charge. Only those who show marked ability in expressive reading and in public speaking will be encouraged to prepare for teaching.

Consultation Hours.—Assistant Professor HOLLISTER may be consulted in Room 24, U. H., on Mondays and Wednesdays, at 12; Mr. HOUGHTON, Mondays and Thursdays, at 2, and the first two weeks of each semester at 1.

FIRST SEMESTER

1. Elocution. Three sections. *Three hours.* Mr. HOUGHTON and Mr. IMMEL.

A study of the principles that underlie expression by voice and action, and the application of those principles in practice; physiology of the vocal organs with exercises for developing the voice and for correct breathing and tone placing; pronunciation and emphasis; quality, force, pitch and time as elements of vocal expression, with illustrative readings; principles of action with practice in positions, and technique of gesture; delivery of extracts from masterpieces of oratory with special reference to distinctness, directness, earnestness, ease, and the conversational method of speaking. Outside reading, and practice on exercises given in class, are required.

3. Study of Great Orators. *Three hours.* Assistant Professor HOLLISTER.

Lectures on methods of public address and sources of power. Study of representative orations. Structure of the oration. Qualities of a good oration. The preparation and delivery of speeches. Those who desire at some time to enter the oratorical contests should take this course. Orations prepared for the University contest will be accepted as a part of the work of this course.

Course 3 must be preceded by Course 1 or its equivalent.

5. Debating. Two sections. *Two hours.* Assistant Professor HOLLISTER.

Study and application of the principles of argumentation. Preparation of briefs. Leading questions of the day studied and debated in class. The aim is to develop readiness in extempore speaking, to give freedom and ease on the platform, and to cultivate the logical processes of analysis and discrimination. All who expect to enter the debating contests or who expect to teach argumentation should take this course.

Course 5 must be preceded by Course 1 or its equivalent.

7. Shakespearean Reading. *Two hours.* Assistant Professor HOLLISTER and Mr. IMMEL.

Critical study of two plays, a tragedy and a comedy. Analysis of character, plot and incident. Expressional reading of principal scenes. Characters assigned to members of the class and scenes presented from the platform. Public recitals twice each semester. Plays selected from the following: *Julius Caesar, Othello, The Merchant of Venice, Romeo and Juliet, The Tempest.*

Course 7 must be preceded by Course 1 or its equivalent.

[7*a*. Continuation of Course 7. *Two hours.* A second section formed, if necessary. Professor TRUEBLOOD.

Plays to be selected from the following: *Coriolanus, King John, Henry VIII, Anthony and Cleopatra, The Comedy of Errors, The Taming of the Shrew, Measure for Measure.*

Omitted in 1909-1910.]

Course 7*a* must be preceded by Course 1, or its equivalent.

9. Interpretive Reading. *Two hours.* Mr. HOUGHTON.

The oral interpretation of poetic and dramatic masterpieces. The reading aloud and the delivery of selections and scenes from the platform. Its purpose is to cultivate good oral interpretation of literature. Recommended especially to those who expect to teach English literature.

Course 9 must be preceded by Course 1 or its equivalent.

SECOND SEMESTER

1. Elocution. Two sections. *Three hours.* Mr. HOUGHTON and Mr. IMMEL.

This is a repetition of Course 1 given in the first semester.

2. Public Speaking. Two sections. *Two hours.* Mr. HOUGHTON.

Studies in public speaking and the delivery of short original speeches. Topics are selected from history, politics, current events, personal experiences, etc., and speeches are prepared for various occasions. This course aims to give as much practice in self-expression as possible.

Course 2 must be preceded by Course 1 or its equivalent.

4. Shakespearean Reading. *Two hours.* Assistant Professor HOLLISTER and Mr. IMMEL.

Oral reading of two plays, a tragedy and a comedy. Characters assigned to members of the class and plays presented from the platform. Public recital of plays used. The aim is to stimulate interest in Shakespeare by vocal interpretation and dramatic presentation. Plays selected from the following: *Macbeth, Richard III, Much Ado About Nothing, Henry IV* (Part I), *The Winter's Tale, A Midsummer Night's Dream.*

Course 4 must be preceded by Course 1 or its equivalent.

[4*a*. Continuation of Course 4. Two sections. *Two hours.* Professor TRUEBLOOD.

Plays to be selected from the following: *Hamlet, King Lear, Henry V, As You Like It, Twelfth Night, Cymbeline.*

Course 4*a* must be preceded by Course 1 or its equivalent. Omitted in 1909-1910.]

6. Debating. Continuation of Course 5. Assistant Professor HOLLISTER and Mr. HOUGHTON.

Course 6 must be preceded by Course 1 or its equivalent.

[8. Forensic Masterpieces. *Two hours.* Assistant Professor HOLLISTER.

This course is designed to cultivate an appreciation of the oratory of a few leading English-speaking orators. A critical study of the principal speeches of five or six great orators, and delivery from the platform of extracts from those speeches. Selections made from the following: Hamilton, Webster, Phillips, Lincoln, Beecher, Chatham, Burke, Erskine, Bright, and Gladstone.

Course 8 must be preceded by Course 1.

Omitted in 1909-1910.]

10. Advanced Public Speaking. Assistant Professor HOLLISTER and Mr. HOUGHTON.

Examination of the Webster-Hayne, the Lincoln-Douglass, and other great debates. The preparation and delivery by each student of an extended address. Participation in a public debating or oratorical contest during the semester required; or the presentation of an equivalent amount of practical speaking before public assemblies. *Two hours.* Assistant Professor HOLLISTER and Mr. HOUGHTON.

Open by permission of the instructors to students who have shown exceptional proficiency in debating and oratory. Course 10 must be preceded by Courses 1, 2, and 3 or 5.

11. Interpretive Reading. The oral interpretation of selections from one of the following poets: Browning, Longfellow, Lowell, Tennyson. *Two hours.* Assistant Professor HOLLISTER.

Open to students who have had Course 1, or who receive special permission.

In 1909-1910 Tennyson will be studied.

MUSIC

The courses in Music are open to students who evince sufficient ability to pursue them with profit, and are subject to the general rule regarding elections. Courses 1 to 8 are technical, and represent a course of professional training, for the completion of which four years are required. Courses 9 to 14 are open to students who wish to study the historical development of music, as well as its significance as an art. Courses 15 and 16 can be elected only by special permission. The instruments in the Stearns Collection, an "Aeolian Orchestrelle," a "Pianola," "Victor" records, and lantern slides are used for purposes of illustration.

In order that the students in these courses may become familiar with the most important classical and modern works, they will receive full admission to the Faculty Concerts and Historical Recitals, given under the auspices of the University School of Music.

All the courses in music run through the entire year, and students are earnestly advised to take them both semesters.

Practical Music.—Credit, not to exceed two hours per semester, will be given for advanced work in Pianoforte, Organ, Violin playing, and in Singing, under conditions which may be learned on application to Professor Stanley.

These courses are designated as Nos. 17 and 18, and all elections for them are subject to the approval of the Dean and the Professor of Music.

Consultation Hours.—During the first week of each semester, and the period of elections, daily, at 4; for the remainder of each semester, *M, W,* at 4. Room A, U. H.

FIRST SEMESTER

1. Science of Harmony. *Two hours.* Mr. Killeen.
3. Simple Counterpoint. *Two hours.* Professor Stanley.
5. Double Counterpoint. *Two hours.* Professor Stanley.
7. Canon and Fugue. *Two hours.* Professor Stanley.
9. History of Music. (From the Christian Era to the Post-Beethoven Period, including the Oratorio, Opera, Sonata and Symphony. *Three hours.* Professor Stanley.
11. Musical Analysis: A study of musical forms, their origin and development. *Two hours.* Professor Stanley.
13. Evolution of Musical Instruments. *One hour.* Professor Stanley.
15. Seminary. Discussion of important problems in the history, theory, and criticism of music, or such hours as may be agreed upon. *One hour.* Professor Stanley.

SECOND SEMESTER

2. Science of Harmony. *Two hours.* Mr. Killeen.
4. Simple Counterpoint. *Two hours.* Professor Stanley.
6. Double Counterpoint. *Two hours.* Professor Stanley.
8. Canon and Fugue. *Two hours.* Professor Stanley.
10. History of Music. (From Beethoven, including a critical study of the Wagner Music Dramas, and a consideration of the works of modern composers and their tendencies). *Three hours.* Professor Stanley.
12. Music in its Critical Aspects, and in its Relation to Life, a study of the great composers through their most important works, and of the art in its sociological relations. *Two hours.* Professor Stanley.
14. The Evolution of the Modern Orchestra. *One hour.* Professor Stanley.
16. Seminary. Discussion of important problems in the history, theory, and criticism of music. *Two hours.* Professor Stanley.

BIBLIOGRAPHY

FIRST SEMESTER

1. Historical Bibliography, or "The Evolution of the Book." Lectures. *One hour.* Professor DAVIS.

SECOND SEMESTER

[2. Practical Bibliography, or the Description, Care, and Use of Books. Lectures. *One hour.* Professor DAVIS.
Omitted in 1909-1910.]

HISTORY

The instruction offered in the departments of History and American History includes courses in history and in government. The courses in Government are for the sake of convenience grouped and numbered separately.

Students entering upon historical work are, as a rule, required to take first either Courses 1 and 2, dealing with the general history of Europe, or Courses 1*a* and 2*a*, dealing with the general history of England. The order advised is 1 before 2, or 1*a* before 2*a*, but those who find it necessary to begin their work in history the second semester may take 2 before 1, or 2*a* before 1*a*. Students who intend to take advanced work in history should elect these introductory courses (either 1 and 2, or 1*a* and 2*a*) as early as possible after entering college, preferably in the first year.

As soon as the introductory work is completed, students may elect courses in one or more of the following fields: American history (13, 14, 15, 19, 37, 45); ancient history (7, 8, 23, 24); English history (3, 4, unless the student has begun with 1*a* and 2*a*); mediæval and early modern European history (9, 10, 43, 44); modern European history (11, 12). These courses lead on to more advanced work in each field, and students are advised to consult with those in charge of such work concerning choice of courses.

Consultation Hours.—The instructors in the department will have consultation hours as follows:—

Professor HUDSON, first week of each semester, each day at 11; the rest of the semester, Monday and Wednesday at 10, and Tuesday and Thursday at 9. Room 8A, T. H.

Professor VAN TYNE, first week of each semester, daily at 11; the rest of the semester, Thursday at 12. Room 2, T. H.

Professor DOW, the first week of the first semester, the last week preceding the final examinations for the first semester, and the first two days of the second semester, daily, at 1:15, Room 8A, T. H.; the rest of each semester, Wednesday and Friday, at 9, in Room 8A, and Tuesday and Thursday at 12, in Room 7, T. H.

Professor CROSS, first two weeks of each semester, daily, at 12; the rest of each semester, Monday, Wednesday, and Friday, at 12, Room F, U. H.

Professor Paxson, Monday, Wednesday, and Friday, at 12. Lecture Room, T. H., and Tuesday at 1, East Seminary Room.

HISTORY

1. The General History of Europe, from the fourth to the thirteenth century. Lectures and quizzes. Eleven quiz sections. *Four hours.* Professor Dow, Dr. Marsh, Mr. Jones, and reading assistants.

1*a*. The General History of England, to the accession of Henry VII. Lectures and quizzes. Six quiz sections. *Four hours.* Professor Hudson, Mr. Bacon, and reading assistants.

Additional sections will be formed if needed.

Courses 1*a* and 2*a* are not open to students who have taken Courses 1 and 2. Such students, if they wish to elect English history, should take Courses 3 and 4. (See note to Course 3.)

3. The History of England, to the accession of Henry VII. Lectures, reading and discussions. Two discussion sections. *Three hours.* Professor Hudson.

After the year 1909-1910, Courses 3 and 4 will probably be merged in Courses 1*a* and 2*a*.

5. Studies in English history, during the Tudor and Stuart periods. Reports and discussions, with introductory and supplementary lectures. *Two hours.* Professor Cross.

This course is open to those who have taken History 3 and 4, or an equivalent. The aim of the work is to enable the student to acquire an intimate acquaintance with a limited subject and to furnish training in the critical and constructive use of material. The following subjects are treated in successive years:

5*a*. The Reformation under Henry VIII and Elizabeth. Students are expected to consult the instructor before electing this course.

Given in 1909-1910.

[5*b*. The Cause of the Puritan Revolution.

Omitted in 1909-1910.]

[5*c*. The Restoration and the Revolution of 1688-1689.

Omitted in 1909-1910.]

7. The History of Greece, to the Roman Conquest. Lectures, discussions, and collateral reading. *Three hours.* Professor Cross.

9. Mediæval Civilization and the Rise of Modern States. Lectures, reading, and discussions. Two discussion sections. *Three hours.* Professor Dow.

This course consists of studies in the history of Europe from the eleventh to the fifteenth century, with reference chiefly to the seignorial-feudal regime, the mediæval church-state, the rise of universities, the progress of townspeople, and the development of states in the later middle ages. It is open to students above the first year who have completed satisfactorily Courses 1 and 2 or have had other suitable preparation in general European history.

11. History of England from the Restoration to the French Revolution, including a Consideration of Relations to Continental Powers. Lectures, reading, and discussions. Several discussion sections. *Three hours.* Mr. FRAYER.

14. The Political and Constitutional History of the United States. Lectures, with quiz on lectures and on reading. Six quiz sections. *Three hours.* Professor VAN TYNE.

This course, supplemented by Course 15 in the second semester, covers the history of the United States from the outbreak of the Revolution to the Civil War. Special attention is given in this semester to the divergent English and American political theories, the schemes for financing the Revolutionary War, the European diplomatic entanglements, the relations of the Continental Congress and the states, the efforts to solve the problem of imperial organization, the Constitutional Convention, and the Federalist organization of the new government.

This course or Course 13 should be taken in the sophomore year by those who propose to make a special study of American History.

17. Seminary in American History. *Two hours.* Professor VAN TYNE.

Open only to graduates and to seniors obtaining special permission. This course is intended to offer training in the investigation of historical problems and practice in the handling of original material. The work in 1909-1910 will be concerned with a series of historical problems in the period of the American Revolution, chosen for the purpose of illustrating various methods of research. Social, economic, political, and diplomatic data will be used.

19. Constitutional Law and Political Institutions of the United States. *Three hours.* Professor PAXSON.

This course is designed to meet the needs of upper class students who have already had considerable history. It is based chiefly upon the reading of cases illustrating the development of the Constitution and its application to the various problems of national supremacy, interstate relations, commerce, and colonization.

22. The Rise of Prussia. Lectures, reading, and discussions. *Three hours.* Mr. FRAYER.

23. History of England from the Restoration to the American Revolution, including a consideration of relations to continental powers. Lectures, reading, and discussions. Three discussion sections. *Three hours.* Professor CROSS.

25*a*. Introductory Historical Seminary. *Two hours.* Professor Dow.

In this course an orderly survey is made of the various sorts of work done in the study and writing of history, and exercises are conducted to give some practical acquaintance with the principal methods and tools employed by students of history. The work is designed both for students who are specializing in history, whether with the aim of teaching it or not, and for students in other subjects—such as literature and the social sciences—who desire a definite acquaintance with historical method.

26*a*. Seminary in Mediæval History. *Two hours.* Professor Dow.

Students in this work co-operate with the instructor in the study of some subject from the sources. The course is open, with permission, to those who have taken Courses 25*a* and 25*b*, or have had such training elsewhere.

37. The History of the United States since the beginning of the Civil War. Lectures, reading, and quizzes. *Three hours.* Professor PAXSON.

During the first half of the year the problems of the period of civil war and reconstruction occupy most of the time. The causes and nature of secession are considered; the broader outlines and the conduct of the war are sketched; the constitutional, political, and social conditions resulting from the struggle are examined in detail. This course follows Course 15, and is continued in the second semester by Course 45, which covers the years 1877-1906.

39. Studies in American History. *Two hours.* Professor PAXSON.

In this course and its successor, Course 38, the work is based upon a series of special and bibliographical reports made by the students. The reports are grouped so as to form an intensive study of a portion of the colonial period; but the general bibliography of the whole period is examined. Special efforts are made to give the student the equipment and training needed by the teacher of history, and it is expected that students desiring the departmental recommendation to teach history will elect this, and 38, in their senior year.

[41. Industrial and Social History of the United States. Lectures, reading and quizzes. *Three hours.* Professor PAXSON.

Omitted in 1909-1910.]

43. The Roman Empire and the Church, to the fifth century. Lectures and assigned reading. *Two hours.* Dr. MARSH.

This course is open to students who have had Courses 1 and 2.

SECOND SEMESTER

2. The General History of Europe, from the thirteenth to the eighteenth century. *Four hours.* Professor Dow, Dr. MARSH, Mr. JONES, and reading assistants.

This course forms a continuation of Course 1. The class will be organized in the same way as in the first semester, with lectures and quiz sections, as announced under Course 1.

2a. The General History of England, since the accession of Henry VII. *Four hours.* Professor HUDSON, Mr. BACON, and reading assistants.

This course forms a continuation of Course 1*a.* The class will be organized in the same way as in the first semester, with lectures, quiz sections, hours, and rooms as announced under Course 1*a.*

4. The History of England, since the accession of Henry VII. Lectures, reading and discussions. Two quiz sections. *Three hours.* Additional sections will be formed if necessary. Professor HUDSON.

6. Studies in English History, in the Tudor and Stuart periods. Reports and discussions, with introductory and supplementary lectures. *Two hours.* Mr. FRAYER.

This course is a continuation of History 5. It is given as follows:

6*a.* The Reformation under Henry VIII and Elizabeth.

Students are expected to consult the instructor before electing this course.

Given in 1909-1910.

[6*b.* The Causes of the Puritan Revolution.

Omitted in 1909-1910.]

[6*c.* The Restoration and the Revolution of 1688-1689.

Omitted in 1909-1910.]

8. The History of Rome, to the founding of the Roman Empire. Lectures, discussions, and collateral reading. *Three hours.* Dr. MARSH.

This course is not devoted exclusively to constitutional and legal growth, but aims to present the various aspects of the development of the Roman state.

10. The Age of the Renaissance and the Reformation. Lectures, reading, and discussions. Two discussion sections. *Three hours.* Professor DOW.

This course consists of studies in the history of Europe from the fourteenth to the seventeenth century, with reference primarily to the many-sided environment of the Reformation and to various features of the progress and outcome of that movement. It is open to students above the first year who have completed satisfactorily Courses 1 and 2 or have had other suitable preparation in general European history.

12. History of England from the French Revolution to the Present Time, including a Consideration of Relations to Continental Powers. Lectures, reading, discussions. *Three hours.* Mr. FRAYER.

13. American Colonial History. Lectures with assigned readings and quizzes. *Three hours.* Professor PAXSON.

The work pays attention to the conditions in Europe at the time of the discovery, to the problems of European colonization, and to the most significant facts and tendencies in the political and social life of the English colonies in America, as well as to the origin and development of present institutions.

This course may be taken in the sophomore year.

15. The Political and Constitutional History of the United States. Lectures, with quiz on lectures and assigned reading. Six quiz sections. *Three hours.* Professor VAN TYNE.

Course 15 is a continuation of Course 14, and deals with the reform movements of the Jeffersonian democracy, the development of national feeling, the westward movement and the rise of the political power of the West, the Jacksonian type of democracy, slavery and abolition, party entanglement in the slavery issues, and the final clash of the northern and southern social systems upon the frontier border beyond the Mississippi.

18. Seminary in American History. *Two hours.* Professor VAN TYNE.

Limited to graduate students and to seniors obtaining permission. Course 18 is a continuation of Course 17.

[20. The Teaching of History. *One hour.* Professor DOW.

This course treats, largely in a practical way, of the chief problems which students of history will meet with as teachers of history.

Omitted in 1909-1910.]

24. History of England from the American Revolution to the Present Time. Lectures and discussions. Three discussion sections. *Three hours.* Mr. FRAYER.

25b. Introductory Historical Seminary. *Two hours.* Professor DOW.

This course is a continuation of Course *25a.*

26b. Seminary in Mediæval History. *Two hours.* Professor DOW.

This course is a continuation of Course *26a.*

38. Studies in American History. Two sections. *Two hours.* Professor PAXSON.

This is the continuation of Course 39. The special reports and studies in bibliography and historical method are continued here. The intensive study falls within the period since 1789:—in 1908-1909 it dealt with the Jacksonian epoch; in 1909-1910 it will probably deal with recent history, 1880-1896. Unless specially permitted, students are not expected to elect this course before the middle of the junior year. In special cases it may be taken twice, as 38 and 38*a.*

[42. Industrial and Social History of the United States. Lectures, reading, and quizzes. *Three hours.* Professor PAXSON.

This course is a continuation of Course 41.
Omitted in 1909-1910.]

[44. Rome and the new Germanic Peoples, in the early middle ages. Lectures and assigned readings. *Two hours.* Dr. **Marsh.**

This course is a continuation of Course 43.
Omitted in 1909-1910.]

45. The History of the United States since the Beginning of the Civil War. Lectures, reading, and quizzes. *Three hours.* Professor **Paxson.**

This is the continuation of Course 37, given in the first semester. It covers the years 1877-1906, and traces the chief lines of development since the civil war. Growth of new nationalism, economic reconstruction, extension of population, and political readjustment are the more important topics considered. An attempt is made to explain certain conditions of today by reference to the historical development of the last fifty years.

GOVERNMENT

The courses in government are closely connected with those in history. Hence, while no specific requirement is made, it is expected that students, before entering upon courses in government, will have made adequate preparation in history. Courses 1 and 2 are open to second year students; but the more advanced courses may not be taken by students below the junior year without special permission.

In the courses in government, political institutions are studied as organized and working systems. Institutions are analyzed and compared, with reference to the legal principles and the relations of different institutions to each other. Attention is given to the constitutional framework and the administrative organization, and also to political and other forces at work in the practical operation of government.

Consultation Hours.—Mr. **Moore**, first two weeks of each semester, daily, at 12; the rest of each semester, *Tu, Th,* at 12. Room F, U. H.

FIRST SEMESTER

1. National Administration. Lectures and reading. *Three hours.* Mr. **Moore.**

A study of the United States national government in action, including the organization and procedure of Congress, the powers of the President, and the administrative and judicial system.

5. English Political Institutions. Lectures and reading. *Three hours.* Mr. **Moore.**

Among the topics considered will be: the supremacy of Parliament, the democratic development during the nineteenth century, the system of cabinet government, the influence of the Crown, and the political parties, with outlines of the judicial system, local administration, and colonial government.

9. The Administration of Colonies and Dependencies. Lectures and reading. *Three hours.* Mr. MOORE.

A study will be made of the principal systems of colonization, and especial attention will be given to present governmental problems in the more important colonies and dependencies.

21. Seminary in Government: special topics for advanced students. *Two hours.* Mr. MOORE.

SECOND SEMESTER

2. Comparative Local Administration. Lectures and reading. *Two hours.* Mr. MOORE.

Special attention is given to English local administration, as compared with the more centralized French system and the combination of bureaucratic and popular administration in Prussia and the decentralized methods in the United States.

12. Municipal Government. Lectures, reports, and reading. *Three hours.* Mr. MOORE.

A comparative study will be made of city governments in the United States, England, France, and Prussia. The growth of cities, municipal organization, the relation of the city to the state, and the various branches of municipal activity will be considered.

16. Government in Continental Europe. A comparative study of the political institutions of France, Germany, Austria-Hungary and other European countries. Lectures and reading. *Three hours.* Mr. MOORE.

22. Seminary in Government. Special topics for advanced students. *Two hours.* Mr. MOORE.

INTERNATIONAL LAW

FIRST SEMESTER

1. Lectures on International Law. *Two hours.* President ANGELL.

Course 1 is open only to those who have sixty hours credit. The preliminary work must include two courses in history, as one of which Course 2 is especially recommended.

SECOND SEMESTER

[2. History of Treaties. *Two hours.* President ANGELL.
Course 2 must be preceded by Course 1.
Omitted in 1909-1910.]

POLITICAL ECONOMY AND SOCIOLOGY

Political Economy.—The instruction in Political Economy is arranged to meet the needs of three classes of students. The first class comprises those whose principal work lies in other departments of instruction, but who desire a cursory introduction to the science. Students of this class are advised to take Courses 1 and 2. The second class comprises those who desire to make a fairly thorough study of economics, but who have not time to take the advanced or the semi-professional work offered. Such students are advised to begin their work with Courses 1 and 2 and follow them with Courses 3 and 4, and, if further time is available, with Course 9. The third class embraces those students who desire to make a thorough study of the science of economics, and especially those who wish to combine the study of political economy and finance with history, political science, and law, for the purpose of preparing themselves for some one of the several professions or careers to which this group of studies naturally leads.

It is very desirable that students specializing in economics should have a good reading knowledge of German and French. For second year work in those languages, therefore, such students should elect courses devoted to reading rather than to conversation and the ones specially arranged for students of history and the political composition, and, in the case of German, these courses should be sciences, viz., 3*a* and 4*a*. Course 7*a* in the third year is also recommended.

Certificate Courses.—Special courses, on the completion of which the student will receive a special certificate in addition to his diploma, have been arranged to meet the needs of those students who wish to prepare themselves for particular lines of business, such as insurance, accounting, and banking. These courses, which include a considerable amount of work in the Law Department, are printed in detail in a special announcement. Students who expect to complete one of these courses should enroll with Professor Jones, the secretary of the committee in charge of this work, at the beginning of their university residence or as soon as possible thereafter.

Sociology.—Work in Sociology may begin with either Course 19 or Course 22. The latter should be chosen by those who care only for the practical aspects of the subject, and who intend to take only one course. Neither course should be elected until the junior year.

The Franklin Street Social Settlement of Detroit is affiliated with the sociological work of the University, and affords special facilities to students, especially graduates, who may wish to carry on such studies as are practicable only in a large city.

Occasional excursions to Detroit for the purpose of visiting the Settlement and other places of sociological interest are arranged by one of the assistants.

Consultation Hours.—The instructors in the department will have consultation hours as follows:

Professor ADAMS, first two weeks of each semester, daily, from 1 to 2. Room 8A, T. H.

Professor TAYLOR, Tuesday and Thursday, at 12, both semesters. Room 205, Old Chem.

Professor COOLEY, Monday and Wednesday, at 11, both semesters. Room 8A, T. H.

Professor JONES, first two weeks of each semester, daily, from 11 to 12. Room 8A, T. H.

Assistant Professor SMALLEY, Monday and Wednesday, at 2, both semesters. Room 205, Old Chem.

Assistant Professor HANEY, Monday and Wednesday, at 10. Room 8A, T. H.

FIRST SEMESTER

1. Elements of Political Economy, I. Production and Exchange. Lectures and quizzes. Ten quiz sections. *Five hours.* Professor TAYLOR, Dr. PARRY, and Mr. FRIDAY.

This course must precede all other courses in Political Economy, up to and including 17, except 1*a.*

1*a.* General Economics. *Three hours.* Assistant Professor SMALLEY.

This course is designed to give a general view of political economy, and is intended for students whose primary interest is in other subjects, but who wish to gain some acquaintance with economic principles and problems. It is open to graduates and to seniors. Others who desire to study political economy are expected to elect at the outset Course 1, and will be admitted to this course only by special permission, in exceptional cases.

3. History of the Development of Industrial Society. Lectures and quiz. *Three hours.* Professor ADAMS and Assistant Professor HANEY.

Course 3 embraces a study of the history of English industrial society from the Twelfth Century to the present time and is designed to show how modern industrial customs and rights came into existence. After 1909-1910, it must be preceded by Courses 1 and 2 in Political Economy, and some previous study of English history is very desirable.

5. The Labor Problem. Lectures and quizzes. Two quiz sections. *Three hours.* Assistant Professor HANEY.

This course is intended to cover quite fully the labor problem as it appears in the United States. Evils as seen by laborer and employer are pointed out; and the reactions of both, and of the State, in the effort to meet these evils are described. Unemployment, trade agreements, closed shop, minimum wage, strikes, boycotts, and restriction of output are discussed at some length.

7. Railway Organization and Operation. *Three hours.* Professor ADAMS, Professor JONES, and Assistant Professor HANEY.

This course must be preceded by Course 6. For detailed description, see special announcement of Courses in Business Administration.

7*a*. Railway Tariffs. *Two hours.* Assistant Professor SMALLEY.

This course comprises (a) a practical study of classifications, rate sheets, and rates, the last considered mainly with reference to their historical evolution; and (b) a study of principles and theories of rate making, based upon decisions of courts, of the Interstate Commerce Commission, and of certain state commissions.

8*b*. Railway Conference. *Two hours.* Professor ADAMS and Assistant Professor HANEY.

10. Government Control of Industry. *Two hours.* Assistant Professor SMALLEY.

The aim of this course is to consider industrial regulation from the legal point of view. A study is made of the power of government, under our constitutional system, to control industrial action. This involves, in the main, a discussion of the legal doctrines of the police power and of public policy, so far as they are of economic importance, special attention being paid to their bearing upon the solution of the problems of Labor and Capital, Trusts, Railroads, etc. The course is open only to students with ample preparation in economics. It is also advised that History 19 precede this course.

11. Studies in Economic Theory. *Three hours.* Professor TAYLOR.

Special studies in the leading problems of economic theory, such as the nature and origin of value, the laws of normal value, the origin of interest, the principles regulating distribution, etc. Open only to advanced students.

15. The Corporation Problem. Lectures, assigned reading, and quiz. Two quiz sections. *Three hours.* Assistant Professor SMALLEY.

This course undertakes a study of corporations as an element in industrial society. It deals, first, with the nature and history of corporations, and their significance in modern life. It then offers an account of the promotion, capitalization, management, dissolution, and reorganization of corporations,—a discussion designed especially to disclose the evils to which the growth of corporations has given rise. The course concludes with a consideration of various remedies for these evils, including public control of corporations, special attention being given to the proposal of federal incorporation. After 1909-1910, this course must be preceded by Courses 1 and 2, or an equivalent.

19. Principles of Sociology. Lectures, quiz, and thesis. Four quiz sections. *Four hours.* Professor COOLEY and reading assistant.

Not open to first or second year students.

By special permission, students may elect this course without the quiz, to count as three hours.

This course aims at a systematic study of the underlying principles of social science. The general plan followed is to begin with personal relations in their simplest and most direct form; proceeding thence to the more complex forms of association and to a study of social tendency and the theory of progress. Historical references are freely used, but the main purpose is a rational interpretation of existing society, and ample contemporary illustration is given of the principles advanced. While some attention is paid to the differing views of prominent writers, the course, in the main, is constructive, rather than critical. Cooley's *Human Nature and the Social Order* is used as collateral reading in the first part of the course.

The class is supplied with a list of about fifty topics, accompanied by references, and each student is required to choose one of these topics, and write an essay upon it.

21. The Development of Sociological Thought. For advanced students. *Two hours.* Professor Cooley.

Each student is assigned a special line of study upon which he makes a series of reports. The class consists partly of graduate students, and is conducted as a seminary. Special permission should be obtained before electing this course.

21*a*. Special work in Sociology with graduate students. Professor Cooley.

Graduate students sufficiently advanced in their work to need special guidance, particularly those working for the doctor's degree, will be met in small groups, or singly, as often as it is found practicable and expedient.

23. Social Development of the Church. For advanced students. *One hour.* Professor Cooley.

This course is designed to give students intending to enter the ministry, or others especially interested in the church, an opportunity for study and discussion of the relation of the church to the rest of society, both in the past and the present time. Special permission should be obtained before electing it. It must be preceded by Course 19, and is conducted somewhat as a seminary.

29. Principles of Industry. Lectures and quizzes. *Three hours.* Professor Jones.

A description of the natural, human, and capital factors in the production of wealth. Under the first, the laws of matter and force, raw materials, motive power, topography, climate, and geography are considered; under the second, the physical, racial, social, and other characteristics of man as a wealth producer; under the third, the origin and growth of capital and its effect upon production.

29*a*. Principles of Industrial Technique. Lectures and laboratory. *Two hours.* Mr. HAMILTON.

In this course a statement will be made of the more important applications of science to industry. Special attention, however, will be given to leading materials of commerce, such as wood, fuels, textiles, pigments, etc., the design being to explain the commercial classification in accordance with which they are marketed and to familiarize the student with the simpler tests for determining their qualities and detecting adulterants. It must be preceded by Chemistry 1 and 2.

31. Problems of Production. *Three hours.* Professor JONES.

Especially difficult problems arising in the study of the production of wealth, in Courses 29 and 30, are here taken up. Among these are the conservation of resources, immigration, industrial education, mass production, foreign trade, race conflicts, and the control of the tropics. This course must be preceded by Courses 1 and 2, or 29 and 30.

34. The Manufacturer's Problem of Distribution. Lectures and quizzes. *Two hours.* Professor JONES.

The requirements of marketing as they affect the technique of manufacturing will be discussed, together with the principles governing the determination of price, quality, outlets, and the regulation of competition. Open only to third and fourth year students.

38. Principles of Accounting, I. *Three hours.* Text-book, lectures, and quiz, with laboratory work. Mr. DORNEY.

39. The Theory and Practice of Manufacturing Cost. *Two hours.* Mr. DORNEY.

This course will present the methods of ascertaining the cost of producing a unit of manufactured product. In it there will be discussed (a) the methods of hiring, distributing, and recording labor, (b) the methods of requisitioning, valuing, and tracing materials, (c) the methods of valuing equipment and of distributing interest and depreciation expenses, and (d) the theory and practice of assigning over-head expense or "factory burden." This course must be preceded by Courses 1 and 38 or 38P.

40. Auditing, I. *Three hours.* Mr. DORNEY.

This course will explain the methods of compiling systematic statements of the financial condition of a business, will explain the evidences of defective or fraudulent accounting, and will discuss the problem of valuing equipment, franchises, patents, organization, good-will, and intangible assets of every sort.

This course must be preceded by Course 38, or an equivalent.

51. Introduction to the Mathematical Theory of Interest, Insurance, and Statistics, I. *Two hours.* Professor GLOVER.

The aim of this course is to present such information as to transactions in insurance, annuities, loans, and investment securities as may be of interest to the general student. The treatment calls for no mathematics beyond the elementary algebra required for entrance to the University.

The attention of students who desire to specialize in insurance or actuarial mathematics is called to a note, concerning the arrangement of their work, in this Announcement under Mathematics.

Elect as Mathematics 51.

53. Advanced Mathematical Theory of Interest and Life Contingencies (1). *Two hours.* Professor GLOVER.
Elect as Mathematics 53, which see.

55. Seminary in Actuarial and Statistical Mathematics. *Credit to be arranged.* Professor GLOVER.

SECOND SEMESTER

2. Elements of Political Economy, II. Distribution and Problems. Lectures and quizzes. Six quiz sections. *Four hours.*

A. Distribution. This part occupies the first six weeks of the course, and completes the discussion of economic principles begun in Course 1. Professor TAYLOR, Dr. PARRY, and Mr. FRIDAY.

B. Practical Problems in Political Economy. This is intended to cover in a cursory manner some of the most important applications of economic principles to practical questions. The problems studied are as follows: The Immigration Problem, Industrial Crises, Free Trade and Protection, The Railway Problem, The Monopoly or Trust Problem, and Taxation. Professor ADAMS, Dr. PARRY, and Mr. FRIDAY.

This course is a continuation of Course 1 and with it forms the necessary introduction to all other courses in Political Economy up to and including Course 17, except 1*a*.

4. Principles of Finance. Lectures and quizzes. Two quiz sections. *Two hours.* Professor TAYLOR and Mr. FRIDAY.

Finance, as here used, is not concerned with Money or Banking, but treats of Public Expenditures, Public Revenue, and Public Credit. This course must be preceded by Course 1 or its equivalent.

5*b*. Seminary in Labor Problems. *Two hours.* Assistant Professor HANEY.

This course is designed for those who wish to carry further the study of problems brought up in Course 5. Current events are discussed, and each student investigates some union or employer's association, or a phase of the relation of labor to the law.

6. The Railroad Problem. Lectures and quiz. *Three hours.* Assistant Professor SMALLEY.

Course 6 considers the social and industrial significance of modern transportation, traces the development of railway transportation in this country and in the more important European countries, studies the history of the railway problems of the United States, and pays especial attention to the experiment of control of railways through commissions. This course must be preceded by Course 1 and, after 1909-1910, Course 2.

7*b*. Railway Statistics and Accounts. *Three hours.* Professor ADAMS and Assistant Professor HANEY.

For fuller description, see the special announcement of Courses in Business Administration. This course must be preceded by Courses 6, 38, and 38*a*.

8*c*. Railway Conference. *Two hours.* Professor ADAMS and Assistant Professor HANEY.

9*a*. Money and Banking: Theory and History. *Three hours.* Professor TAYLOR.

This course is open only to students who have had Courses 1 and 2, though in special cases it may be elected at the same time as Course 2.

9*b*. The Practice of Banking. *Two hours.* Mr. DORNEY.

This course is a supplement to Course 9, by which it must be preceded or accompanied, and is specially designed for those students who expect to engage in the practice of banking.

12. History of Economic Thought. Lectures, text-book, and readings. *Two hours.* Assistant Professor HANEY.

This course will present a brief account of the economic ideas of Ancient and Medieval times, followed by a more intensive study of the development of modern theory. The masterpieces of English economics are especially emphasized. The continuity of economic thought is traced, as also its relation to environment. Open to graduates and seniors by permission.

16. Railway Finance. *Two hours.* Assistant Professor SMALLEY.

For fuller description, see the special announcement of Courses in Business Administration. This course must be preceded by Courses 6 and 15.

22. Problems in Sociology. Lectures, quiz, and assigned reading. Four quiz sections. *Four hours.* Professor COOLEY and reading assistant.

Not open to first or second year students.

By special permission, students may elect this course without the quiz, to count as three hours.

This course embraces a study of the laws of population, degeneracy, the liquor problem, poor relief (public and private), vagrancy, crime, and penology, the divorce problem, the assimilation of the foreign element in American population, the development of cities, the tenement question, slums, social settlements, and other sociological questions of present interest.

The class is supplied with a list of about fifty topics, accompanied by references, and each student is required to choose one of these topics, and write an essay upon it.

23*a*. Social development of the Church. For advanced students. Similar to Course 23. *One hour.* Professor Cooley.

Special permission should be obtained before electing this course.

24. Psychological Sociology. For advanced students. *Two hours.* Professor Cooley.

This course is similar in character to Course 21, and usually, though not necessarily, succeeds it. As in other courses, it is endeavored to make this study constructive, rather than merely critical. Special permission should be obtained from the instructor before electing it.

24*a*. Special Work in Sociology with Graduate Students. Professor Cooley.

Graduate students sufficiently advanced in their work to need special guidance,—especially those working for the doctor's degree,—will be met in small groups, or singly, as often as is found practicable and expedient.

25. Social Origins. *Two hours.* Dr. Parry.

An elementary course descriptive of primitive social conditions as exhibited by remains of ancient culture and by accounts of typical tribes. Transition from animal life to human life. Differentiation of tribal life and genesis of institutions, such as language, marriage and the family, industrial, military, and judicial institutions, forms of amusement and art, religious customs and beliefs, social classes and the professions. The manifestations of sociability, invention, and leadership, and the roles of custom, tradition, education, and competition. Chiefly discussion, based on lectures and text-book. Open to sophomores, juniors, and seniors.

26. Drawing and Projections. *Two hours.* Mr. Hamilton.

This course is designed especially to prepare students in Railway Administration to comprehend with reasonable precision and completeness blue prints and designs generally. For fuller description, see the special announcement of Courses in Business Administration. This course must be preceded by Mathematics 1 and 2.

27. Railway Engineering Problems. Lectures and text-book. *Two hours.* Professors Cooley, Williams, Davis, Allen, and Anderson, and Mr. Hamilton.

This course is intended to furnish a general account of Railway Engineering adapted to the needs of students of Railway Administration. For fuller description, see the special announcement of the Courses in Business Administration.

30. Principles of Industry. *Three hours.* Professor Jones.

A continuation of Course 29. The general method of the union of the factors of production is presented. Studies are then made from each branch of industry (agriculture, fishing, mining, manufacture, and commerce) to familiarize the student with the historical evolution, present organization, and technology of production.

32. Business Organization and Management. Text-book and lectures. *Three hours.* Professor Jones.

A study of the organization and management of an individual business. The type chosen is manufacturing. The launching of an enterprise, the location and design of the plant, inside arrangement, and choice and use of power are considered in turn. The general chart of authority is analyzed, and the functions of the departments concerned with purchasing, accounting, traffic, selling, and credit briefly stated. The various systems of managing and paying labor are presented. This course must be preceded by Courses 1 and 2.

33. Internal Commerce of the United States. Lectures and class reports. *Two hours.* Professor Jones.

Beginning with the economic geography of the American colonies, and following the rise of internal commerce through the transition periods to 1815, attention will be directed chiefly to the development of western commerce up to the time of the Civil War, to bring out the local exchanges of each district and the general trade correlations of northeast, northwest, and south. Following the Civil War, the evolution of the main lines of commerce of each region will be traced to date and the subject concluded with a statement of the present economic geography and system of commercial exchanges. This course must be preceded by Courses 1 and 2.

35. Wholesale and Retail Trade. *Two hours.* Professor Jones.

A statement of the practice in these branches of trade and the economic reasoning upon which it rests Open only to third and fourth-year students.

38*a*. Principles of Accounting, II. Lectures and laboratory. *Two hours.* Mr. Dorney.

A continuation of Course 38, which is a prerequisite.

38P. Elements of Accounting. Pharmacy course. Lectures and laboratory. *Two hours.* Mr Dorney.

Literary students admitted only by special permission.

39*a*. Accounting Problems. *Two hours.* Mr. Dorney.

A study of the theory of accounts, and its application in the solution of particular problems. Accounting systems of particular forms of business will be examined in the light of the results to be shown. Prerequisites, Courses 38 and 38*a*.

41. Auditing, II. *Two hours.* Mr. Dorney.

A continuation of Course 40, which is a prerequisite.

45. Introduction to the Study of Law. Lectures, text-books, and quiz. *Two hours.* Class divided into sections for quiz if necessary. Assistant Professor SMALLEY.

In this course a study is made of the nature, sources, purposes, and classification of law; of the history of the common law, law merchant, and equity; of legal and equitable remedies; of the leading features of judicial procedure; of legal literature and authorities; of legal concepts and tendencies; and of the judicial system of this country. The course is open to all students who desire a general knowledge of law, and of the character and development of the legal system of this country; but it is especially designed for students who are candidates for certificates in the courses in Business Administration. For them it is intended as an introduction to the courses in the Law Department, which they are advised to pursue.

52. Introduction to the Mathematical Theory of Interest, Insurance and Statistics (II). *Two hours.* Professor GLOVER.

Course 52 is open to those who have completed Courses 1 (or 1E) and 2 (or 2E) in mathematics.

Elect as Mathematics 52.

54. Advanced Mathematical Theory of Interest and Life Contingencies (II). *Two hours.* Professor GLOVER.

For further information see Course 54 in mathematics.

56. Seminary in Actuarial and Statistical Mathematics. *Credit to be arranged.* Professor GLOVER

PHILOSOPHY

Candidates for the higher degrees, with major or minor in Philosophy, are requested to communicate with Professor LLOYD as soon as possible, stating their proposed courses of study, the subject of thesis, etc.

Consultation Hours.—On the first two days of the first semester members of the department will be found in the Morris Reading Room (18*b*, U. H.) from 11 to 12 and from 3 to 4. Throughout the year the instructors will have fixed hours of consultation, which will be duly announced to the classes. Special consultation hours will be arranged before the date set for filing of election blanks for the second semester.

Related Courses.—Various departments offer courses of special value to the students of philosophy. The instructors will be glad to point out the more useful related courses to any student who may make application.

Morris Reading Room. –The greater part of the carefully selected philosophical library of the late Professor George S. Morris (presented to the University by Mrs. Morris) has been removed to Room 18*b*, U. H., which comprises a Reading Room open to all students of philosophy, and Seminary Rooms for advanced courses.

Through the continued generosity of Mrs. Morris important additions were made to the Library in 1908-1909.

Philosophical Society.—The Acolytes is a Society to which students who have distinguished themselves in Philosophy may be elected on recommendation of the faculty.

Psychological Laboratory.—The Psychological Laboratory occupies fifteen rooms of various sizes in an isolated building on a quiet part of the campus. There are two commodious dark rooms, separate rooms for registration apparatus, one large room for demonstration purposes, and several for research. The rooms are amply supplied with water, gas, high and low voltage currents to furnish power and to replace primary batteries in ordinary experiments.

The equipment includes a complete set of the apparatus required for demonstration and class use, models of the brain and sense organs, a full set of reaction time instruments, and an unusually large collection of pieces for use in recording the bodily expressions during affective states. The laboratory is also particularly well equipped for experiments on sound, but not to the exclusion of an adequate supply of instruments for work in other lines. Such apparatus as is needed for advanced work or research will be procured as required, and many of the newest appliances are added each year. Every facility and encouragement are offered to students of sufficient preliminary training to undertake investigations on some special problem.

Important Notice to Students.—There is such a wide diversity in the preparation, needs, and aims of individual students that the Philosophical department cannot lay down inflexible rules with regard to the sequence of its courses; *all students are advised urgently to consult freely with the instructors.* Courses 1, 2 (*a b*, or *c*), 3, 4, 5 (*a, b,* or *c*), 6, 7, 8*a*, and 9, precede all others; and any one of them may be chosen as the avenue of entrance to the department and as introducing to other courses. This rule does not apply to students coming with advanced credit, or to special students; all such cases will be decided individually, according to certified attainments and personal requirements. Starred courses should not be elected without consultation.

The following general advice may be given. If possible, students should elect one (preferably Course 1) or more of the nine Introductory Courses in the first or second semester of the sophomore year. If Course 2*a*, 3, 4, 5, 6, 7, 8*a*, or 9 be chosen, it ought to be followed by Course 1. Courses 10-20 inclusive are Second Courses and, with exceptions noted for separate cases as below, may be elected after any one of the Introductory Courses. Courses 12 and 21 should be elected in conjunction with Course 11*a*. Courses 21, 22 (*a* etc.), 23, 24, and 25 (*a* etc.) should be elected in conjunction with Course 11*b*. The Psychological Courses (8*b* and 26-29) are subject to special arrangements which may be learned on inquiry.

Students desirous of specializing in Philosophy must begin with Course 1, which should be followed by Courses 9, 11*a*, 11*b*. The rest of their work will be mapped out to meet particular needs.

The following courses are suggested as profitable for particular classes of students: For classical students, Courses 1, 2 (*a* etc.), 6, 11*a*, 12, 13, 18; for students of English and other European Literatures, 1, 2 (*a* etc.), 6, 15, 18, 22 (*a* etc.); for students of Economics and Administration, 1, 2 (*a* etc.), 5 (*a* etc.), 14, 20; for students of History, 1, 2 (*a* etc.), 5 (*a* etc.), 14, 15, 16, 22 (*a* etc.); for students on the Combined Literary and Law Course, 1, 2 (*a* etc.), 5 (*a* etc.), 9, 10, 14, 16; for students on the Combined Literary and Medical Course, 1, 3, 8*a*, 8*b*; for students of the Sciences, 1, 3, 8*a*, 8*b*, 10, 19, 21, 22 (*a* etc.), with some work in experimental psychology for students of Philosophy and Biology. Students preparing for theological seminaries are advised to elect Courses 1, 2 (*a* etc.), 3, 4, 5 (*a* etc.), 9, 10, 15, 17, 19, 21, and 22 (*a* etc.).

Students preparing themselves to teach Psychology are required to take Courses 1, 8*e*, 8*f*, 9, 11*b*, 26, 26*b*, and Anatomy, Course 1 (Anatomy of the Nervous System); they are also advised to elect Courses 1, 7, 26, and 26*b*.

FIRST SEMESTER

I. Introductory Courses.

1. Philosophical Introduction. Lectures, discussion sections, exercises. *Three hours.* Professor WENLEY, Dr. VIBBERT, and Dr. EMERSON.

The object of this course is to explain to beginners in the most elementary manner possible, the meaning, interest, and scope of philosophy; to compare its outlook with other standpoints, such as those of the average man (common-sense), of history, and of science (including Psychology). Text-books: Hume's *Inquiry Concerning Human Understanding* (Open Court). This is a *three-hour* course; every student will attend one discussion section per week; this in addition to the two lectures; after the beginning of the semester, the class will be divided into sections for this purpose, and each student will have an opportunity to elect the hour most suitable for the section work.

2*a*. Principles of Ethical, Social, and Aesthetic Evolution. *Two hours.* Professor LLOYD.

This course is intended specially for (1) students of literature, classical and modern, and (2) students of sociology, history, and politics. Subject in 1909:—The Roman Empire and Modern Society. Collateral reading; written exercises.

3. The Fundamental Conceptions of Modern Science in their Development and Implications. *Two hours.* Dr. EMERSON.

This course is intended to show some of the philosophical implications of scientific hypothesis.

4. The Place of Doubt in Experience. Lectures, exercises, and collateral reading. *Two hours.* Professor LLOYD.

A study of the rise and function of doubt, and of the relation of doubt to belief, with critical examination of the great skeptical periods in history, and of the relation of philosophy to the consciousness of practical life.

7. Elementary General Psychology. Lectures, assigned readings and discussions. Text-book: Angell's *Psychology*. *Three hours.* Professor PILLSBURY and Dr. SHEPARD.

A rapid survey of the facts of mind. Intended primarily for students of pedagogy, but open to others who are not interested in the experimental and physiological aspects of Psychology.

8*a*. Introductory Physiological and Experimental Psychology. Sensation, Attention, Association. *Three hours.* Professor PILLSBURY and Dr. SHEPARD.

It is suggested that six-year literary-medical students, students of biology, and others who desire more than the rudiments of psychology begin their work with this course. Lectures, discussion, and laboratory work. It may be elected as 8*a* (*three hours*) without laboratory work, as 8*c* (*four hours*), or 8*e* (*five hours*). Students who have had previous work in psychology and desire only the laboratory work and discussion sections may elect it as a three-hour course. Text-books: James's *Principles of Psychology,* Kuelpe's *Outlines of Psychology,* or Sully's *Human Mind;* Titchener's *Laboratory Manual.*

II. Course in Logic.

10. Second Course in Logic. *Two hours.* Assistant Professor TOWER.

An introduction to the more concrete modern conceptions of thought and logic. Lectures, with collateral reading and discussion of some representative text. Open to those who have had either Course 7 or Course 9.

III. Courses in History of Philosophy.

11*a*. History of Ancient Philosophy. Lectures, reading, exercises. *Three hours.* Professor LLOYD.

Open to approved students who have had any one of the introductory courses or an equivalent.

[25*e*. British Philosophy: Hobbes, Locke, and Berkeley. Attention will be given to the connection of these thinkers with the scientific movements of the seventeenth century, and their contribution to the critical empiricism so characteristic of British thought will be noted. Portions of Hobbes's *Elements of Philosophy concerning Body,* Locke's *Essay,* and Berkeley's *Principles of Human Knowledge* will be read and discussed in class. *Two hours.* Mr. SELLARS.

Omitted in 1909-1910.]

*12. Plato's *Republic.* (Davies and Vaughan's translation; Greek text edited by Adam). Assigned reading and reports. *Two hours.* Dr. VIBBERT.

15. The Development of American Ideals. *Two hours.* Professor WENLEY.

The origins and chief epochs of American life, its representative men, and its underlying inspirations and principles. These last will be traced in the broad movement of political, economic, social, and religious and cultural conditions, but especially in the reflective utterances of literature and of political, religious, and philosophical thought. The course should be preceded by a general course in American history.

*21. Kant and the Critique of Pure Reason. Text-books: Watson's *Selections from Kant,* and Wenley's *Introduction to the Critique.* Proseminary; reading and theses. *Two hours.* Assistant Professor TOWER.

IV. Special Courses.

14*a*. Political Philosophy—special course. *Two hours.* Professor LLOYD.

A critical study of society; the principles of political association and evolution; progress; the relations of political and industrial institutions to fundamental ideas of philosophy and religion; the personal and the social. This course is recommended to students of history, to those who have had or intend to take Course 14, and to students of economics and sociology.

17. Philosophy of Religion. Lectures, readings, theses. Special attention is given to the rise and disappearance of natural theology; to speculative theology; and to strictly contemporary problems. *Two hours.* Professor WENLEY.

17*b*. The Philosophical Implications of Psychology. *Two hours.* Dr. EMERSON.

This course is intended (1) for those who wish to know the attitude of modern psychology to scientific, æsthetic, and kindred problems; (2) for those who are interested in psychology in its pedagogical relations.

25*a*. Pragmatism—its history and its place in the philosophy of the present day. *Two hours.* Dr. VIBBERT.

[*25*b*. German Pessimism in the Nineteenth Century. Schopenhauer, Hartmann, and Nietzsche. *Two hours.* Mr. VIBBERT. Omitted in 1909-1910.]

25*c*. English Ethics of the Nineteenth Century. Green, Sidgwick, Martineau, Spencer, Stephen, Alexander. *Two hours.* Assistant Professor TOWER.

18. Aesthetics. Lectures, reading, discussions. *Two hours.* Professor WENLEY.

*19*a*. Logic and Theory of Knowledge. Lectures, exercises, and collateral reading. *Two hours.* Professor LLOYD.

A study of fundamental problems with special reference to the possible grounds of realistic experience. The course is open only to approved students familiar with the general history of philosophy.

V. Courses in Psychology.

25. A Study of Apperception. Teachers' Course. Text-books, Pillsbury's *Attention*. *Two hours.* Dr. SHEPARD.

26*c*. The Psychology of Language. Among the subjects treated are: the laws of thought and language, the history of linguistic theory, language as a form of expression, the genesis of speech, and the psychology of syntax. Elect as General Linguistics 26*c*. *Two hours.* Professor PILLSBURY and Assistant Professor MEADER.

Professor SCOTT and Assistant Professor BOUCKE will give lectures on special topics.

*27\. Advanced Course in Experimental Psychology. Original investigation. This course may be elected as 27 (*two hours*), 27*a* (*three hours*); or 27*b* (*six hours*). Professor PILLSBURY and Dr. SHEPARD.

29. Psycho-physical Methods. Discussion and laboratory work. *Two hours.* Professor PILLSBURY and Dr. SHEPARD.

VI. Graduate Seminaries.

*30\. Graduate Seminaries. These are arranged in order to give flexibility to the special work of graduate students whom the announced graduate courses do not suit. The work in them will be apportioned as follows:

Ancient Philosophy. Professors WENLEY, LLOYD, Assistant Professor TOWER, and Mr. VIBBERT.

History of Philosophy. Professor LLOYD, Mr. VIBBERT, and Dr. EMERSON.

Philosophy of Religion. Professor WENLEY.

Modern Philosophy. Professors WENLEY and LLOYD, Mr. VIBBERT, and Dr. EMERSON.

Ethics, Epistemology, and Metaphysics. Professors WENLEY and LLOYD, Mr. VIBBERT, and Dr. EMERSON.

Logic and Æsthetics. Assistant Professor TOWER and Mr. VIBBERT.

Advanced General, Systematic, and Experimental Psychology. Professors PILLSBURY and BARRETT, and Dr. SHEPARD.

SECOND SEMESTER

I. Introductory Courses.

1. Philosophical Introduction. *Three hours.* Professor LLOYD, Mr. VIBBERT, and Dr. EMERSON.

5a. Ethics of Social Evolution: a study of Ethical Types as seen in Social and Industrial Relations. Text-book, Wundt's *Facts of the Moral Life* (Macmillan). *Two hours.* Professor WENLEY.

This course is designed specially for students of (1) history, (2) law and sociology, (3) commerce and administration. The problems will be approached from the standpoint of social organization. The ethical significance of social, and especially of industrial institutions, will be considered, also the relation of these institutions to the conditions of moral progress and political stability in a society. Questions will be set for the individual consideration of students, with reference to the line of study they are pursuing. Subject in 1909-1910: The Utilitarian School, and its influence in England and the United States.

6. Principles and Problems in Æsthetic History (Special Æsthetics). *Two hours.* Professor WENLEY.

The aim of the course is to give a concrete and inductive study of æsthetic development, with a view to eliciting the ways in which man has embodied the problems of life under the forms and limitations of art. Relation of philosophy to the interpretation of art, especially of poetry. This course is recommended strongly to students of Semitic, Classical, English and European literatures, and particularly to those preparing to teach these subjects. Lectures, reading, analysis and discussion of representative masterpieces. Work will be assigned individual students with special reference to their line of study.

7. Elementary General Psychology. Same as in first semester. *Three hours.* Professor PILLSBURY and Dr. SHEPARD.

9. Introduction to Logic. Lectures, collateral reading, and text-book work. Text-book: Minto's *Logic, Deductive and Inductive.* Course 1 is the natural prerequisite to this course. *Three hours.* Assistant Professor TOWER.

II. Courses in History of Philosophy.

11*b*. History of Modern Philosophy. Lectures, reading, and reports. *Three hours.* Mr. VIBBERT.

The course is open to approved students who have had any one of the introductory courses or an equivalent. Course 11*a*, while not required, furnishes desirable preparation for this course.

[*23. Hegel's System. Wallace's Prolegomena and Logic of Hegel. This course will alternate with 24. *Two hours.* Professor WENLEY.

Omitted in 1909-1910.]

*24. Philosophy since Hegel. This course will alternate with 23. *Two hours.* Assistant Professor TOWER.

III. Courses in Ethics.

*13. Aristotle's Ethics. Collateral reading and reports. Text-book: Peters. *Two hours.* Mr. VIBBERT.

20. Problems of Human Conduct. *Two hours.* Professor LLOYD.
A study of the moral ideal, motive and judgment, of conscience and will. An elementary course in ethical theory, partly historical and partly critical and constructive, which is open to all students who have had any one of the introductory courses in philosophy, or an equivalent.

IV. Special Courses.

14. Political Philosophy. Lectures, discussions, theses. *Two hours.* Professor LLOYD.

A history of the theories of society, ancient and modern. Attention will be given especially to the contract theory of the seventeenth and eighteenth centuries. Students who have had Course 1; or Courses 2*a* and 20; or Courses 2*a, b,* or *c,* and 5*a, b,* or *c*; or Courses 5*a, b* or *c* and 20, will be admitted. These form a minimum preparation; but two courses in philosophy proper (*e. g.,* Courses 1 and 2*a, b,* or *c*; or 1 and 5*a, b,* or *c*; or Courses 1 and 20) are strongly recommended as a preparation. Reading, discussions, exercises.

[19*b*. Logic and Theory of Knowledge. Lectures, exercises, and collateral reading. *Two hours.* Professor LLOYD.

A continuation of Course 19*a*.
Omitted in 1909-1910.]

25*d*. Studies in the Rise, Growth, and Change of Values. Values, worths, or appreciations in conduct, religion, and art have only lately received due recognition in Psychology and Logic. This course will consist largely in a study of the factors which determine these standards so constantly used in our judgments. The role of imitation, race, genius, and historical situation as objective determinants will be pointed out, and attention called to the intimate penetration of what is ordinarily termed Reason by Feeling and Temperament. *Two hours.* Mr. VIBBERT.

[*25*f*. Contemporary Metaphysics. *Two hours.* Assistant Professor TOWER.

This course is designed as an introduction to the leading movements of present-day metaphysics. A critical presentation will be made of the views of several important thinkers, *e. g.,* Royce, Jame, Taylor, and Höffding. The struggle between realism and idealism will give perspective and determine largely the problems for detailed examination.
Omitted in 1909-1910.]

*25*g*. Studies in Ethics. *Two hours.* Dr. **Emerson.**

In this course the problems of Good and Evil will be considered constructively. The student will be asked to make himself familiar with two standard works in ethics, of divergent views, and will prepare a thesis on each.

*25*h*. Problems in Modern Philosophy. *Two hours.* Dr. **Emerson.**

In this course leading problems in modern philosophy will be considered pragmatically. The course will consist of lectures, discussions, reports, and a final thesis on some subject selected according to the interest or needs of the individual student.

*22*b*. Philosophical Implications of Movements of Thought in the Nineteenth Century. Lectures, discussions. *Two hours.* Professor **Wenley.**

Open to all seniors, and to juniors who have had two courses in Philosophy. Subject, in 1909: Romanticism and Idealism.

V. Courses in Psychology.

8*b*. Introductory Physiological and Experimental Psychology. Feelings, emotions, and the higher intellectual processes. *Three hours.* Professor **Pillsbury** and Dr. **Shepard.**

Continuation of Course 8*a*. This course may, by special permission, be elected as an introductory course without being preceded by Course 8*a*. It may be elected as 8*b, three hours;* 8*d, four hours;* 8*f, five hours.*

26*b*. Genetic Psychology. Teachers' Course. *Two hours.* Dr. **Shepard.**

This course will treat consciousness in its development, both in the animal series and in the child. It will offer an opportunity, from the theoretical side, to prepare for the practical phases of child study, (see announcement of the Department of Education) in its relation to education. For those purposing to teach, this course should follow Course 26.

26*a*. Psychology of the Abnormal and Occult. *Two hours.* Professor **Pillsbury.**

A critical survey of the more important facts of mental derangement that throw light upon the principles of general psychology. The more interesting forms of modern occultism will be considered in their bearings upon psycho-pathology.

*28. Advanced Course. As in Course 27 in first semester. Professor **Pillsbury** and Dr. **Shepard.**

VI. Graduate Seminaries.

*31. Graduate Seminaries. As in first semester. Professors **Wenley, Lloyd, Pillsbury,** and **Barrett,** Assistant Professor **Tower,** Mr. **Vibbert,** Dr. **Shepard,** and Dr. **Emerson.**

EDUCATION

General Statement.—The aims of the courses in Education are:

1. To offer prospective high school teachers, normal school teachers, principals, and superintendents the necessary technical training for their profession.

2. To present educational history and problems in their more philosophic and scientific aspects so as to be of value to all university students whether they intend to become teachers or not.

3. To offer to mature students and to teachers of experience who wish to elect work in Education as a major or minor subject, direction and facilities for research leading to higher degrees.

The courses are so arranged as to enable students to plan for their advanced work after their Junior year, with reference to three fairly distinct aspects of Education, the historical, the scientific, or theoretical, and the administrative. Undergraduates are advised to postpone exclusive specialization leading to the Master's or the Doctor's degree until their graduate study is begun. Courses 1 and 2 are strictly introductory courses. No student who expects the Teacher's Diploma may pursue advanced work in the department who has not had this or equivalent preparatory work in educational theory and practice. Advanced credit from other universities or colleges, or from normal schools, will be granted as consideration of the individual cases may warrant. Such students should consult the instructor before enrolling.

Consultation Hours.—The instructors in the department will have consultation hours as follows:

Professor WHITNEY, first week of each semester from 9-12; thereafter daily at 4. Room 4, T. H.

Assistant Professor JOHNSTON, daily at 12. Room 4, T. H.

Assistant Professor BERRY, daily at 10. Room 6*a*, T. H.

Dr. JACKSON, *M, W, F,* at 12. Room 5, T. H.

Course 7 in philosophy is prerequisite to work in this department. This course should be pursued during the sophomore year.

The Teacher's Diploma.—Candidates for the Teacher's Diploma are required to complete eleven hours of work in this department, including Courses 1, 2, and 4.

FIRST SEMESTER

I. Primarily for Juniors.

1. History of Ancient and Mediæval Education. Four sections. *Three hours.* Professor WHITNEY, Assistant Professor BERRY, and Dr. JACKSON.

   This course is designed to acquaint the student with the educational theories and practices of ancient and mediæval times in their relations to the general history of civilization. Emphasis is placed upon the actual methods of procedure in historic institutions, and upon the classic formulations of educational ideals. Some preparatory work in history and in philosophy is recommended.

II. Primarily for Seniors.

3. Psychology of Education. Lectures, class room experiments and observations, and assigned problems for class discussion.

The applications of the facts of recent psychology to the practical problems of teaching. Attempt will be made to show through many concrete illustrations the working value of psychology to the teacher. Two sections. *Three hours.* Professor JOHNSTON.

7. Mental Development. Lectures, recitations, observations, and themes.

The purpose of this course is to present the facts of mental evolution, and to show how this knowledge may be applied in education. Special attention is given to those conditions that modify or determine growth of mind in the child. *Two hours.* Assistant Professor BERRY.

20. School Hygiene. Lectures, selected readings, and reports. *Two hours.* Assistant Professor BERRY.

The work of this course considers the problems connected with the physical welfare and development of children, such as legislation relative to school hygiene, ventilation of school rooms, medical inspection, nursing systems in public schools, the general care of defectives, methods of dealing with diseases of ear, eye, throat, and skin, nervous derangements, laws of fatigue, hygienic school programs, etc.

III. Primarily for Seniors and Graduates.

11. Educational Theories of the Greeks. Introductory lectures on early Greek conceptions of nature and of mind; actual systems of education at Sparta and at Athens; educational importance of the Sophists; Xenophon's *Education of Cyrus,* and his *Memorabilia* of Socrates; Plato's *Apology, Crito, Phaedo,* and *Protagoras*; and a more detailed study of the text of Plato's *Republic,* and of selections from Aristotle's *Ethics* and *Politics* in translation. *Two hours.* Professor JOHNSTON.

13. Problems in Secondary Education. *Two hours.* Professor WHITNEY.

The aim of this course is to present the general problems involving the evolution, organization, and management of high schools, together with such special contemporary problems as are now forcing themselves for solution.

17. Comparative School Systems. Lectures, prescribed readings, and reports. *Two hours.* Professor WHITNEY.

This course is designed to present the essential features of the school systems of the United States, England, Germany, and France, to compare these systems with each other, and to judge of the efficiency of each in the light of their respective educational aims and national ideals. Among the topics treated are organization, supervision, curriculum, methods of teaching, continuation schools, technical schools, universities, etc.

27. History of Education in America. *One hour.* Professor WHITNEY.

This course treats of the development of elementary, secondary, and higher education in America, and attempts to account for the present educational tendencies and movements and to give perspective for judging them. Some of the more notable American educators will be studied and their contributions will be analyzed and weighed. Effort will be made also to discover the vital relations existing between American school practices and European theories and movements.

29. Advanced Course in Applied Psychology. *Credit arranged.* Professor JOHNSTON.

A critical study of psychology as applied to distinctive educational processes. Among the subjects treated are: formal discipline, measurement of mental traits, orthogenics, typical studies in learning and habit formation, and the psychology of number, reading, and language. Some preparatory work in psychology is a prerequisite for admission to the course. No student should elect the work without permission from the instructor.

SECOND SEMESTER

I. Primarily for Juniors.

2. History of Education. Five sections. *Two hours.* Dr. JACKSON.

This course is a continuation of Education 1. Beginning with the Reformation period the work will be concerned with tracing the significance and definite developments which have lead up to our modern educational conceptions and institutional systems.

II. Primarily for Seniors.

4. Practical Problems in Secondary Education. *One hour.* Professor WHITNEY.

In this course are discussed those practical problems which confront every teacher, such as his relation to those in authority, to pupils, to parents, to community; organization, discipline; method of the recitation, examinations; course of study; physical, intellectual, social, and spiritual life of the high school, etc. This course is not required of those electing Education 16.

5. Educational Reformers. Lectures, selected readings, and reports. *Two hours.* Professor JOHNSTON.

A study of the lives and of the distinctive contributions to educational theory of Rousseau, Pestalozzi, Herbart, and Spencer.

6. Philosophy of Education. Prepared syllabus, lectures, assigned reports, and class discussions. *Three hours.* Professor JOHNSTON.

The purpose of this course is to outline and to examine briefly the distinguishable aspects of the educative process. The attempt will be made to interrelate our industrial, biological, psychological, aesthetic, religious, and sociological ideals. The course is planned for those students who desire sufficient acquaintance with educational theory to enable them to read critically the modern literature on the subject.

III. Primarily for Seniors and Graduates.

18. Seminary. Course of Study. Lectures, assigned investigations, and frequent reports. *Two hours.* Professor JOHNSTON.

An historical sketch of secondary school curricula, the bases upon which an American high school course of study must rest, a comparison of sectionally typical high school programs, the theory of the function of the course of study as a whole, an examination into the distinctive specific disciplines of representative established subjects in the course, and a study of the reasons for the admission of vocational subjects, art appreciation courses, manual training, high school hygiene, and physical training. Each member of the seminary will be expected to inform himself with more detail as to the history, status, and specific educational value of the particular subject he proposes later to teach in the high school. Those who do not intend to teach should not elect this course.

14. Social Education. The school as a social factor in its relation to the child, the home, the community, the state, and the church. Relation of education to vocation and crime. *Two hours.* Professor WHITNEY.

16. School Administration. General school management, the arts of grading and arranging courses of study, teachers' meetings, how to estimate a teacher's work, consideration of elementary school arts, methods of teaching, analysis of text-books, etc. This course is designed for those looking forward to principalships or superintendencies; others will be admitted only by permission. *Three hours.* Professor WHITNEY.

[24. Seminary in Contemporary Educational Problems and Movements. *Two hours.* Professor JOHNSTON.

The work of the course is designed to furnish the student practice in using sources and in following developments, and to make him familiar with the best monograph and book contributions to the solution of the leading educational issues.

Omitted in 1909-1910.]

30. Seminary. Psychological investigation of educational processes. *Credit to be arranged.* Professor JOHNSTON.

The work of the course consists in examining critically the methods and results of representative psychological investigations having direct bearing upon the problems of teaching, and in affording the student practice in adapting the approved methods to the study of some specific educative processes.

MATHEMATICS

Courses 1, 2, 3, 4 (or equivalent courses), taken in order, furnish the preparation preliminary to further study in any field of pure or applied mathematics. Courses 1E, 2E, 3E, 4E, and 5E are equivalent to the courses prescribed for students in the Department of Engineering (see announcement of that Department).

Courses 1, 1E, 2, 2E, *2a,* 3, 3E, 4, 4E, 5E, 51, and 52 are intended primarily for undergraduates; Courses 5, 7, 8, 9, 10, 12, 13, 16, 19, 20, 27, 28, 53, and 54 are for undergraduates and graduates; other courses are primarily for graduates, though undergraduates of exceptional ability are admitted by special permission.

Students desiring to specialize in Insurance or Actuarial Mathematics should arrange to take the courses in Mathematics in the following order: 1, 2, 3 (or 3E) and 51, 4 (or 4E) and 52, 53, 54, 55, and 56.

Students preparing to teach mathematics in high schools should take Courses 1, 2, 3, 4, 19, 20, and five or more hours of additional work, selected after consultation with the head of the department.

FIRST SEMESTER

1. Plane Trigonometry and Algebra. Ten sections. *Four hours.* Professors MARKLEY and HALL, Assistant Professors FORD and BRADSHAW, Mr. CASTLE, and Mr. COE.
Students who offer plane trigonometry either for admission or advanced credit should elect Course 1E.

1E. Algebra and Analytic Geometry. Three sections. *Four hours.* Assistant Professor BRADSHAW and Mr. CASTLE.

2. Plane Analytic Geometry. *Four hours.* Assistant Professor BRADSHAW.

3. Calculus (I). *Four hours.* Professor BEMAN.

3E. Calculus. Ten sections. *Five hours.*

5. Solid Analytic Geometry. *Two hours.* Professor BEMAN.

5E. Calculus and Mechanics (II). Seven sections. *Five hours.*

7. Projective Geometry (I). *Three hours.* Assistant Professor BRADSHAW.

9. Differential Equations. *Three hours.* Professor BEMAN.

11. Theory of Functions of Real Variables and Introduction to Theory of Functions of a Complex Variable. *Three hours.* Professor MARKLEY.

13. Higher Algebra (I). *Three hours.* Professor GLOVER.

17. Theory of the Potential. *Three hours.* Professor ZIWET.

19. Teachers' Seminary. Algebra. *Two hours.* Professor BEMAN.
Courses 19 and 20 are open to those who have completed Courses 1, 2, 3, 4, or 1E, 2E, 3E, 4E.

21. Advanced Differential and Integral Calculus (I). *Two hours.* Professor BEMAN.

25. Differential Geometry (I). *Credit to be arranged.* Professor HALL.

27. Theory of Numbers (I). *Two hours.* Mr. ESCOTT.

29. Harmonic Analysis (I). *Two hours.* Assistant Professor FORD.

31. Theory of Functions, including the theory of Elliptic Functions. Advanced course. *Two hours.* Professor MARKLEY.

[33. Geometrical Calculus. The geometry of Grassman and Peano; Gibbs's vector analysis; scalar and vector fields. *Two hours.* Professor ZIWET.

Not given in 1909-1910.]

[35. Elementary Theory of Differential Equations. A lecture course with references to available literature on the subject. Particular attention will be given to the ideas of Lie. *Three hours.* Professor HALL.

Not given in 1909-1910.]

37. Mathematical Theory of Elasticity (I). *Hours to be arranged.* Professor ZIWET.

39. Hydrodynamics. *Two hours.* Professor ZIWET.

41. Infinite Series and Products (I). *Two hours.* Assistant Professor FORD.

Course 41 should accompany or follow Course 11.

[43. Theory of Divergent Series (I). *Two hours.* Assistant Professor FORD.

Not given in 1909-1910.]

45. Special Topics in the Study of Divergent Series (I). *Two hours.* Assistant Professor FORD.

[47. History of Mathematics. *Two hours.* Dr. KARPINSKI.

Not given in 1909-1910.]

51. Introduction to the Mathematical Theory of Interest, Insurance and Statistics (I). *Two hours.* Professor GLOVER.

The aim of this course is to present such information as to transactions in insurance, annuities, loans, and investment securities as may be of interest to the general student. The treatment calls for no mathematics beyond the elementary algebra required for entrance to the University.

53. Advanced Mathematical Theory of Interest and Life Contingencies (I). *Two hours.* Professor GLOVER.

Course 53 is open to those who have completed Courses 3 (or 3E) and 4 (or 4E). It embraces a detailed study of the mathematical theory of interest and life contingencies.

55. Seminary in Actuarial and Statistical Mathematics. *Credit to be arranged.* Professor GLOVER.

SECOND SEMESTER

1. Plane Trigonometry and Algebra. *Four hours.* Mr. CASTLE.

2. Plane Analytic Geometry. Ten sections. *Four hours.* Professors MARKLEY and HALL, Assistant Professors FORD and BRADSHAW, Mr. CASTLE, and Mr. COE.

2E. Analytic Geometry. Two sections. *Four hours.* Assistant Professor BRADSHAW and Mr. CASTLE.

2a. Spherical Trigonometry. *Two hours.* Professor Hall.

4. Calculus (II). *Four hours.* Professor Beman.

4E. Calculus and Mechanics (I). Ten sections. *Five hours.*

5E. Calculus and Mechanics (II). Seven sections. *Five hours.*

8. Projective Geometry (II). *Three hours.* Assistant Professor Bradshaw.

10. Quaternions. *Credit to be arranged.* Professor Beman.

12. Theory of Functions of a Complex Variable. *Three hours.* Professor Markley.

14. Higher Algebra (II). *Three hours.* Professor Glover.

16. Advanced Mechanics. *Three hours.* Assistant Professor Field.

18. Higher Plane Curves. *Two hours.* Professor Beman.

20. Teachers' Seminary. Geometry. *Two hours.* Professor Beman.

22. Advanced Differential and Integral Calculus. *Two hours.* Professor Beman.

24. Linear Differential Equations. *Two hours.* Professor Beman.

26. Differential Geometry (II). *Credit to be arranged.* Professor Hall.

28. Theory of Numbers. *Two hours.* Mr. Escott.

30. Harmonic Analysis. *Two hours.* Assistant Professor Ford.

32. Theory of Functions. Continuation of Course 31. *Two hours.* Professor Markley.

38. Mathematical Theory of Elasticity. Continuation of Course 37. Professor Ziwet.

40. Hydrodynamics. Continuation of Course 39. *Two hours.* Professor Ziwet.

42. Infinite Series and Products (II). *Two hours.* Assistant Professor Ford.

[44. Theory of Divergent Series (II). *Two hours.* Assistant Professor Ford.
Not given in 1909-1910.]

46. Special Topics in the Study of Divergent Series (II). *Two hours.* Assistant Professor Ford.

52. Introduction to the Mathematical Theory of Interest, Insurance and Statistics (II). *Two hours.* Professor Glover.
A continuation of Course 51.
This course includes an elementary treatment of the following subjects: Interest, investment securities, averages, mortality tables, annuities, computation of life insurance premiums, and reserves.

54. Advanced Mathematical Theory of Interest and Life Contingencies (II). *Two hours.* Professor Glover.
This course must be preceded by Course 53, of which it is a continuation.

56. Seminary in Actuarial and Statistical Mathematics. *Credit to be arranged.* Professor Glover.

58. Curve Fitting. *Two hours.* Assistant Professor Running.

ASTRONOMY

Courses 1, 2, 8, and 10 are recommended to those who wish to obtain a general knowledge of modern Astronomy without entering far into its mathematical details. The elementary Courses 3, 5, and 9 are intended to give an insight into technical astronomical methods in the departments of Spherical and Practical Astronomy, Mathematical Astronomy, and Astrophysics, respectively.

In addition to the courses announced below advanced work in Theoretical and Practical Astronomy and Astrophysics will be arranged as far as possible to suit the needs of individual students. To this end, the instruments of the Observatory, when not otherwise employed, will be available for the use of such students as have the technical ability to use them to advantage.

FIRST SEMESTER

1. General Astronomy. The Solar System. Two sections. *Two hours.* Professor HUSSEY.

   A descriptive course, including the fundamental principles of Astronomy, and a presentation of the leading facts respecting the sun, moon, planets and comets. Occasional lantern illustrations.

4. Advanced Practical Astronomy. Studies in Spherical Astronomy. Recitations and observational work. *Two hours.* Professor HUSSEY.

   Theory of the equatorial and its use in observational work illustrating modern practice. Reduction of measurements. Open to those who have had Course 3, or its equivalent.

5. Theoretical Astronomy. *Three hours.* Professor HUSSEY.

   The elements of Celestial Mechanics, and theory and practice in the determination of parabolic and elliptic orbits. This course presupposes a knowledge of Integral Calculus.

8. History of Astronomy. *Two hours.* Assistant Professor CURTISS. The history of Astronomy from the time of Newton, but treating especially of the development of the science during the past century. Open to those who have had Courses 1 and 2, or an equivalent, of which this may be regarded as a continuation.

10. Elementary Practical Astronomy. *Two hours.* Assistant Professor CURTISS.

    Constellation studies and telescopic examinations of the heavenly bodies. Selected problems with the celestial globe and the equatorial telescope. Recitations during a portion of the semester at the University. Also observational work during the day and at night at the Observatory.

11. Variable Stars. *Two hours.* Assistant Professor CURTISS.

    Lectures at the University and observational studies of selected stars at the Observatory.

12. Spectroscopic Binaries. *Two hours.* Assistant Professor CURTISS.
Theory and practice in the determination of orbits from spectroscopic measurements of motion in the line of sight, and from photometric observations of variation in brightness. Course 9 is a prerequisite.

14. Advanced Mathematical Astronomy. Studies in continuation of Course 7 will be arranged for those qualified to take them. *Hours and credit to be arranged.* Offered both semesters.

SECOND SEMESTER

2. General Astronomy. Stars and Nebulae. Two sections. *Two hours.* Professor HUSSEY.
A general descriptive course in stellar and nebular astronomy. Occasional lantern illustrations. May be taken in continuation of Course 1, or independently, as desired.

3. Practical Astronomy. *Two hours.* Assistant Professor CURTISS.
The elements of Spherical Astronomy. Theory of the sextant and transit and their use in the solution of practical problems, including determinations of time, latitude, azimuth, and longitude. The observational work at the Observatory in connection with this course will be varied to suit the needs of students from the different Departments.

6. Least Squares and Empirical Curves. *Two hours.* Assistant Professor CURTISS.
Theory of the combination and adjustment of observations according to the Method of Least Squares. Construction of empirical curves in the solution of experimental problems.

7. Advanced Theoretical Astronomy. *Three hours.* Professor HUSSEY.
Definitive determination of orbits. Theory of Interpolation and Mechanical Quadrature. Special Perturbations. Open to those who have had Course 5.

9. Astrophysics. *Two hours.* Assistant Professor CURTISS.
An introductory course in the Principles of Spectroscopy. General treatment of methods and results, having reference to the interpretation of solar and stellar phenomena. Practice in the measurement and reduction of spectrograms will form a portion of the course. A general knowledge of physics, astronomy, and calculus is required.

10. Elementary Practical Astronomy. *Two hours.* Assistant Professor CURTISS. See announcement for first semester.

14. Advanced Mathematical Astronomy. See announcement for first semester.

PHYSICS

Courses designated by E are open only to students in the Department of Engineering; those designated by M are intended for students in the Departments of Medicine.

FIRST SEMESTER

1. General Physics: Mechanics, Sound, and Light. Lectures and recitations. Four recitation sections. *Four hours.* Professor REED, Mr. WILLIAMS, and Mr. SLEATOR.

Course 1 is open to those only who have satisfied the entrance requirements in physics, and must be preceded or accompanied by a course in plane trigonometry.

1*a*. Physical Problems. *One hour.* Professor REED.

This course should be elected in conjunction with Course 1. It is especially designed for students preparing to teach. Special attention will be given to the solution of illustrative problems.

1E. General Physics: Mechanics, Sound, and Light. *Five hours.* Assistant Professor HENDERSON, Dr. MELLENCAMP, Dr. COLBY, Mr. RICH, Mr. JENNER, Mr. WILDER, and Mr. SHELLENBARGER.

In Courses 1 and 1E a knowledge of plane trigonometry is necessary.

Course 1E is for engineering students only.

3. Physical Laboratory Work for Beginners. Mr. RICH.

5. Electrical Measurements. *Four hours.* Lectures, recitations and laboratory work. Assistant Professor SMITH, Dr. COLBY, and Mr. JENNER.

Course 5 must be preceded by Courses 1, 2, and 3*a* or 3*b*. A knowledge of calculus is also required.

6. Sound. Lectures and laboratory work. *Four hours.* Professor REED.

Course 6 must be preceded by Courses 1 and 3*a* or 3*b*. A knowledge of calculus is also required.

7. Intermediate Course in Electricity and Magnetism. Alternating Currents and Electrical Oscillations. *Three hours.* Professor GUTHE.

Course 7 must be preceded by Course 2. A knowledge of calculus is also required.

[8. Theory of Heat: Preston. *Two hours.* Assistant Professor RANDALL.

Course 8 must be preceded by Course 2 or 2E.

Omitted in 1909-1910.]

[9. Heat. Laboratory work. *Two hours.* Assistant Professor RANDALL.

Course 9 must be preceded or accompanied by Course 8.

Omitted in 1909-1910.]

10. Advanced Course in Electricity and Magnetism: Mascart and Joubert. *Three hours.* Professor GUTHE.

A knowledge of calculus is required.

14. Sound. Advanced laboratory work. *Two hours.* Professor REED.

Course 14 must be preceded by Course 6.

[17. Measurements of High Temperature. *One hour.* Assistant Professor RANDALL.
Course 17 must be preceded by Course 5.
Omitted in 1909-1910.]

19. Physical Colloquium. Professors REED and GUTHE.
Reports on original research, together with analysis and discussion of important articles in current physical literature. All instructors, assistants and graduate students in the department take part in the Physical Colloquium. While intended primarily for graduate students, it is also open to undergraduates doing advanced work.

21. Electrochemistry. *Two hours.* Assistant Professor HENDERSON.
Course 21 is an advanced course and must be preceded by Course 18. It will be devoted largely to the solution in the laboratory of problems arising in Course 18.

SECOND SEMESTER

2. General Physics: Heat and Electricity. Lectures and recitations. Four recitation sections. *Four hours.* Professor REED, Mr. WILLIAMS, and Mr. SLEATOR.

2*a*. Continuation of Course 1*a*. *One hour.* Professor REED.

2E. General Physics: Heat and Electricity. *Five hours.* Assistant Professor HENDERSON, Dr. MELLENCAMP, Dr. COLBY, Mr. RICH, Mr. JENNER, Mr. HARRIS, Mr. WILDER, and Mr. SHELLENBARGER.
Course 2E is for engineering students only. It must be preceded by Course 1E.

3. Physical Laboratory Work for Beginners. Repetition of Course 3, first semester. Mr. RICH.

4. Advanced Laboratory Work. Lectures and laboratory. Four sections. *Two hours.* Dr. MELLENCAMP and Dr. COLBY.
Course 4 must be preceded by Courses 2 (or 2E), and 3*a* or 3*b*, and a course in general or analytical chemistry.

[9. Heat. Laboratory work. *Two hours.* Assistant Professor RANDALL.
Omitted in 1909-1910.]

11. Theory of Light: Preston. Recitations and laboratory work. *Four hours.* Professor REED.
Course 11 must be preceded by Course 6.

12. Electrical Measurements. Continuation of Course 5. Recitations and laboratory. Two sections. *Three hours.* Assistant Professor SMITH and Dr. COLBY.

15. Light. Advanced laboratory work. *Two hours.* Professor REED.

16*a*. Thermodynamics. Continuation of Course 16. *Two hours.* Professor GUTHE.

[17. Measurements of High Temperature. *One hour.* Assistant Professor RANDALL.
Course 17 must be preceded by Course 5.
Omitted in 1909-1910.]

18. Electrochemistry. Modern theories studied from the viewpoint of physics. *Four hours.* Assistant Professor HENDERSON.
In this course the modern theories of electrochemistry will be studied from the point of view of physics.

19*a*. Physical Colloquium. Continuation of Course 19. Professors REED and GUTHE.

20. Electricity and Magnetism. *Two hours.* Professor GUTHE.
Course 20 must be preceded by Course 10.

[22. The Electron Theory. *Two hours.* Professor GUTHE.
Omitted in 1909-1910.]

CHEMISTRY

Students who expect to specialize in Chemistry are urged to elect in their first year of study, English, Mathematics, and German. A reading knowledge of German is almost indispensable to advanced work in Chemistry. Mathematics is necessary for those who expect to do advanced work in theoretical or technical Chemistry. A year's work in University Physics should be taken by those who elect work in advance of Course 3.

The courses numbered 1 to 10 give work upon the foundation of Chemistry, in its several divisions. A sufficient number of these courses must be completed before entering upon the advanced studies of the science, or its special application to the industries and professions. It is stated for each course what other courses must precede it. Of the more advanced studies, Courses 13 to 26 are in General, Inorganic, and Physical Chemistry; Courses 27 to 40 in Analytical, Technical, and Applied Chemistry; Courses 42 to 51 in Organic Chemistry.

FIRST SEMESTER

Foundation Courses in Chemistry:

1. General and Inorganic Chemistry. *Two hours.* Two experimental lectures and one recitation a week. Professor BIGELOW.
Course 1 must be accompanied by Course 1*a*.

1*a*. General and Inorganic Chemistry. *Two hours.* Two laboratory periods and one hour discussion of laboratory work a week. Laboratory is open from 8 to 12, and from 1 to 4:30. Assistant Professor LICHTY, Mr. SMEATON, Dr. LIND, Mr. BARTELL, and Mr. HUNTER.
Those electing Courses 1 and 1*a* are expected to elect Courses 2 and 2*a* the following semester, as they form one complete whole and should properly be considered as one course extending through the year. They must precede all other courses in chemistry.

A. General and Inorganic Chemistry. *Four hours.* Assistant Professor LICHTY.

Course A is required of all first year students in the Departments of Homœopathic Medicine, Dentistry, and Pharmacy. Others may elect the course only by special permission.

2E. Principles of Inorganic Chemistry. *Four hours.* Two experimental lectures and two recitations per week. Seven sections for recitations. Mr. SMEATON.

Course 2E is required of all first year students in the Department of Engineering who have presented entrance chemistry. Others may elect the course only by special permission.

2*b*. General and Inorganic Chemistry. *Two to four hours.* Two lectures, one recitation, and two laboratory periods a week. Assistant Professor HALE.

This course is for students who have had chemistry, but not the full equivalent of Courses 1, 1*a*, 2, and 2*a*. It may be elected only after consultation with the instructor. An examination will be held within the first four weeks and those considered inadequately prepared will be transferred to Courses 1 and 1*a*.

3. Qualitative Analysis. Laboratory work and recitations. *Seven hours.* Professor JOHNSON.

Laboratory work is taken four times a week, in forenoon or afternoon. The laboratory is open from 8 to 12 and from 1 to 5. Course 3 must be preceded by Courses 2 and 2*a*, or 2*b*.

3*a*. Qualitative Analysis. Laboratory work and recitations. Four sections. *Four hours.* Professor JOHNSON, Dr. WILLARD, Mr. CARNEY, and Mr. COLE.

Course 3*a* is not a complete course in itself, but should be followed by 3*b*. Courses 3*a* and 3*b*, together, cover the same ground as Course 3. Course 3*a* must be preceded by 2 and 2*a*, or 2*b*.

3*b*. Qualitative Analysis. Laboratory work and recitations. *Four hours.* Mr. CARNEY.

Course 3*b* must be preceded by 3*a* or its equivalent.

3*c*. Qualitative Analysis. Recitations and laboratory. *Ten hours.* Professor JOHNSON.

Course 3*c* must be preceded by 2 and 2*a*, or 2*b*.

5. Quantitative Analysis. Beginning Course. Recitations and laboratory. *Five hours.* Professor CAMPBELL and Dr. WILLARD.

Course 5 must be preceded by Course 3 or 3*b*.

7. Chemistry of Carbon Compounds. Lectures and recitations. *Five hours.* Professor GOMBERG.

Course 7 must be preceded by Course 3 or 3*b*.

11. Chemical Colloquium. Professor CAMPBELL.
The review of important researches recently published, with critical discussions. Reports upon investigations in this laboratory. All the instructors of the department are members of the Colloquium, and it is conducted by the several professors. Graduate students and those advanced in chemistry are eligible to membership.

General and Physical Chemistry:

13. Physical-Chemical Measurements. *Three to eight hours.* Laboratory work. Dr. LIND.
The eight hours which are required for the completion of all the work in Course 13 may be divided between two semesters. The course must be preceded or accompanied by Courses 5 and 8.

16. Laboratory Research in Inorganic Chemistry. *Credit to be arranged.* Professor BIGELOW and Assistant Professor LICHTY.

17. Laboratory Research in Organic Chemistry. *Credit to be arranged.* Assistant Professor HALE.

18. Laboratory Research in Physical Chemistry. *Credit to be arranged.* Professor BIGELOW and Mr. SMEATON.
Courses 16, 17, and 18 are intended for advanced students. They are open only to persons who receive special permission from the instructor. Students electing these courses must be able to read German and French, and must have a knowledge of inorganic, organic, and analytical chemistry.

19. Seminary in Special Topics. Conferences and reading. *One to three hours.* Professor BIGELOW.
Course 19 must be preceded by Courses 8 and 13. Permission must be obtained from the instructor to elect this course.

20. German Reading. Two hours sight reading in the current literature. *One hour.* Mr. SMEATON.
This course is intended for advanced students in chemistry, and may be taken only by such as convince the instructor of their satisfactory preparation.
This course may be elected as 20, or as *20a* by students who have had Course 20 but desire further practice in sight reading. The matter read is different each semester.

21. Research in Physical Chemistry. *Credit to be arranged.* Dr. LIND.
The course is open only to students who have had the important courses in physics and chemistry.

23. Advanced Theoretical and Physical Chemistry, with special reference to chemical statics and dynamics and the phase rule. Seminar. *Two hours.* Dr. LIND.
This course is a continuation of Course 8, and must be preceded by Courses 8 and 13.

[25. Stereochemistry, including a general study of isomerism. Lectures. *Two hours.* Assistant Professor HALE.
Course 25 must be preceded by Course 7 or 10.
Omitted in 1909-1910.]

26. The Heterocyclic Derivatives in Organic Chemistry. *Two hours.* Assistant Professor HALE.
Course 26 must be preceded by Course 7 or 10.

Analytical and Applied Chemistry:

28. Advanced Quantitative Analysis. *Five hours.* Dr. WILLARD.
Course 28 is open to those who have taken Course 5, and Course 2 in Physics. Students cannot elect this course without special permission.

29. Iron and Steel Analysis. *Five hours.* Professor CAMPBELL.
Course 29 is open to those who have taken Course 28, and who receive special permission.

31. Independent Work in Mineral Analysis. Laboratory work. *Five hours.* Professor CAMPBELL and Dr. WILLARD.
Course 31 must be preceded by Course 28. It is desirable that this course be preceded by Course 27 and also by Course 1 or 2 in Mineralogy.

32. Technical Examination of Gold and Silver Ores by the Fire Assay. Laboratory work, with lectures and reading. *Two hours.* Mr. WARE.
Course 32 must be preceded or accompanied by Course 28.
Course 2 in Mineralogy is recommended.

33. Chemical Technology. A study of inorganic industrial chemistry. The chief subjects treated are fuels, water, the acid and alkali industry, cements, and glass. Lectures and assigned reading. *Five hours.* Professor WHITE.
Course 33 must be preceded by Course 3 or 3*b* and by Course 2 in Physics. Course 8 is recommended.

34. Chemical Reading. Reading and seminary work. *One or two hours.* Professor CAMPBELL.
Course 34 requires special permission.

35. Technical Gas Analysis, including Calorimetry and Photometry. Lectures and laboratory. Two sections. *Two hours.* Professor WHITE and Mr. WARE.
Course 35 must be preceded by Course 5, and requires special permission.

36. Original Investigation in Qualitative Analysis. Laboratory work. *Credit to be arranged.* Professor JOHNSON, Dr. WILLARD, and Mr. CARNEY.
Course 36 must be preceded by Course 5, and requires special permission.

37. Original Investigation in Analytical Chemistry. Laboratory work. *Credit to be arranged.* Professor CAMPBELL.
Course 37 is open only to those who have special permission.

39. Chemical Technology. Laboratory work and discussions. *To be arranged. Three to eight hours.* Professors Campbell and White.

The object of this course is to give training in independent work on problems involved in industrial chemistry. The problems to be investigated may be selected by the student after consultation, and the line of work followed whether in inorganic, organic, analytical, physical, or metallurgical chemistry will determine the instructor with whom the subject is to be pursued.

Special permission must be obtained to elect this course, which must be preceded by Courses 28, 33, and such additional courses as the subject may require. A reading knowledge of German or French is essential.

Organic Chemistry:

42. Organic Synthesis. Laboratory work. *Three, four, or five hours.* Professor Gomberg and Dr. Cone.

Course 42 must be preceded by Course 5, and preceded or accompanied by Course 7.

43. Organic Synthesis and Ultimate Analysis. Laboratory work and reading. Continuation of Course 42. *Three, four, or five hours.* Professor Gomberg and Dr. Cone.

45. The Chemistry of the Proteins. *Two hours.* Dr. Cone.

This course is designed for advanced students and requires special permission.

47. Organic Analysis. Food analysis and the technical examination of various organic products such as are used in the arts, manufactures, etc. Laboratory work with collateral reading. *Credit to be arranged.* Professor Gomberg.

Course 47 requires special permission and must be preceded by Courses 5, 7, and 42.

49. Original Investigation in Organic Chemistry. Laboratory work. *Credit to be arranged.* Professor Gomberg and Dr. Cone.

Course 49 must be preceded by Courses 7 and 42, and requires special permission.

SECOND SEMESTER

Foundation Courses in Chemistry:

1*b*. Beginning Chemistry. Lectures and laboratory. *Four hours.* Assistant Professor Lichty.

This course offers an opportunity for those entering the University at the opening of the second semester to commence the study of chemistry, but no student will be admitted who might have elected 1 and 1*a*. Special permission must be obtained from the instructor in order to elect this course.

2 and *2a*. General and Inorganic Chemistry. Continuations of Courses 1 and *1a*, the hours and credits being the same in each semester. Assistant Professor HALE.

Course 2 must be accompanied by *2a*.

2E. Principles of Inorganic Chemistry. *Four hours.* Two experimental lectures and two recitations per week. Mr. SMEATON.

Course 2E is required of all first year students in the Department of Engineering who have presented entrance chemistry. Others may elect the course only by special permission.

3. Qualitative Analysis. Laboratory work and recitations. *Seven hours.* Professor JOHNSON and Mr. CARNEY.

Laboratory work is taken four times a week, in forenoon or afternoon. The laboratory is open from 8 to 12 and from 1 to 5. Course 3 must be preceded by Courses 2 and *2a* or *2b*.

3a. Qualitative Analysis. Laboratory work and recitations. Four sections. *Four hours.* Professor JOHNSON, Dr. WILLARD, Mr. CARNEY, and Mr. COLE.

Course *3a* is not a complete course in itself, but should be followed by *3b*. Courses *3a* and *3b*, together, cover the same ground as Course 3. Course *3a* must be preceded by 2, and *2a*, or *2b*.

3b. Qualitative Analysis. Laboratory work and recitations. Two sections. *Four hours.* Mr. CARNEY.

Course *3b* must be preceded by *3a* or its equivalent.

3c. Qualitative Analysis. Recitations and laboratory. *Ten hours.* Professor JOHNSON.

Course *3c* must be preceded by 2 and *2a*, or *2b*.

5. Quantitative Analysis. Beginning Course. Recitations and laboratory. *Five hours.* Professor CAMPBELL and Dr. WILLARD.

Course 5 must be preceded by Course 3 or *3b*.

6. Inorganic Preparations. *Three to seven hours.* Assistant Professor LICHTY.

Students electing this course must have completed Course 3 or *3b*.

Course 6 covers general chemistry in a way suited for those intending to teach.

8. Elementary Theoretical and Physical Chemistry. *Four hours.* Professor BIGELOW.

This course must be preceded by Course 3 or *3b*. Physics 2 is strongly recommended.

9. Inorganic Chemistry. Descriptive and experimental lectures, including selected topics. Continuation of Courses 1 and 2. *Three hours.* Assistant Professor LICHTY.

Course 9 must be preceded or accompanied by Course 3 or *3a*.

10. The Chemistry of Carbon Compounds. *Four hours.* Professor GOMBERG.

Course 10 must be preceded by Course 3 or *3b*.

11. Chemical Colloquium. Professor Campbell.
    The review of important researches recently published, with critical discussions. Reports upon investigations in this laboratory. All the instructors of the department are members of the Colloquium, and it is conducted by the several professors. Graduate students and those advanced in chemistry are eligible to membership.

General and Physical Chemistry:

13. Physical-Chemical Measurements. Laboratory work. *Three to eight hours.* Dr. Lind.
    The eight hours which are required for the completion of all the work in Course 13 may be divided between two semesters. The course must be preceded or accompanied by Courses 5 and 8.
14. Electrochemistry. Arrhenius' theory of ionization, the conductivity of electrolytes, Nernst's theory of electromotive force and a study of electrolysis, including illustrations from analytical and industrial chemistry. Lectures. *Two hours.* Dr. Lind.
    Course 14 must be preceded by Course 8. Course 5 in Physics is recommended.
15. History of Chemistry and Development of Chemical Theory. Lectures. *Two hours.* Mr. Smeaton.
16. Laboratory Research in Inorganic Chemistry. *Credit to be arranged.* Professor Bigelow and Assistant Professor Lichty.
17. Laboratory Research in Organic Chemistry. *Credit to be arranged.* Assistant Professor Hale.
18. Laboratory Research in Physical Chemistry. *Credit to be arranged.* Professor Bigelow and Mr. Smeaton.
    Courses 16, 17, and 18 are intended for advanced students. They are open to persons who receive special permission from the instructor. Students electing these courses must be able to read German and French, and must have a knowledge of inorganic, organic and analytical chemistry.
19. Seminary in Special Topics. Conferences and reading. *One to three hours.* Professor Bigelow.
    Course 19 must be preceded by Courses 8 and 13. Permission must be obtained from the instructor to elect this course.
20. German Reading. Two hours sight reading in the current literature. *One hour.* Mr. Smeaton.
    This course is intended for advanced students in chemistry, and may be taken only by such as convince the instructor of their satisfactory preparation.
    This course may be elected as 20, or as 20*a* by students who have had Course 20 but desire further practice in sight reading. The matter read is different each semester.

21. Research in Physical Chemistry. *Credit to be arranged.* Dr. LIND.

    The course is open to students who have had the important courses in physics and chemistry.

22. Spectroscopic Analysis and Use of the Spectroscope. One lecture and one laboratory period a week. *Two hours.* Assistant Professor LICHTY.

24. Theory and Practice of Exact Measurements, with laboratory practice in glass blowing, calibration, and construction of apparatus. One lecture and one or two laboratory periods. *Two or three hours.* Dr. LIND.

    Special permission must be obtained from the instructor in order to elect this course.

Analytical and Applied Chemistry:

27. Chemistry of the Rare Elements. Lectures, recitations and laboratory. *Four hours.* Dr. WILLARD and Mr. CARNEY.

    Course 27 must be preceded by Course 3 or 3*b*. It requires special permission.

28. Advanced Quantitative Analysis. Laboratory work. *Five hours.* Dr. WILLARD.

    Course 28 is open to those who have taken Course 5, and Course 2 in Physics. Students cannot elect this course without special permission.

29. Iron and Steel Analysis. Laboratory work. *Five hours.* Professor CAMPBELL.

    Course 29 is open to those who have taken Course 28 and who receive special permission.

31. Independent Work in Mineral Analysis. Laboratory work. *Five hours.* Professor CAMPBELL and Dr. WILLARD.

    Course 31 must be preceded by Course 28. It is desirable that this course be preceded by Course 27 and also by Course 1 or 2 in Mineralogy.

34. Chemical Reading. Reading and seminary work. *One or two hours.* Professor CAMPBELL.

    Course 34 requires special permission.

35. Technical Gas Analysis, including Calorimetry and Photometry. Lectures and laboratory work. *Two hours.* Professor WHITE and Mr. WARE.

    Course 35 must be preceded by Course 5, and requires special permission.

36. Original Investigation in Qualitative Analysis. Laboratory work. *Credit to be arranged.* Professor JOHNSON, Dr. WILLARD, and Mr. CARNEY.

    Course 36 must be preceded by Course 5, and requires special permission.

36*a*. Qualitative Experiments in Electrolysis. *One hour.* Professor JOHNSON.

Must be preceded by Course 2 in Physics and Course 5 in Chemistry.

37. Original Investigation in Analytical Chemistry. Laboratory work. *Credit to be arranged.* Professor CAMPBELL.

Course 37 is open only to those who have special permission.

38. Chemical Technology. The industrial chemistry of organic compounds. Among the subjects treated are: starch, glucose, and sugar; fermentation and distillation; fats, oils, and soaps; bleaching and dyeing; tanning; paper manufacture. Lectures and assigned reading. *Five hours.* Professor WHITE.

Course 38 must be preceded by Courses 7 and 33.

39. Chemical Technology. Discussions and laboratory work. *Three to eight hours.* Professor CAMPBELL and Professor WIHTE.

Special permission must be obtained to elect this course, which must be preceded by Courses 28, 33, and such additional courses as the subject may require. A reading knowledge of German or French is essential.

The object of this course is to give training in independent work on problems involved in industrial chemistry. The problems to be investigated may be selected by the student after consultation, and the line of work followed whether in inorganic, organic, analytical, physical, or metallurgical chemistry will determine the instructor with whom the subject is to be pursued.

Organic Chemistry:

42. Organic Synthesis. Laboratory work. *Three, four, or five hours.* Professor GOMBERG and Dr. CONE.

Course 42 must be preceded by Course 5, and preceded or accompanied by Course 7.

43. Organic Synthesis and Ultimate Analysis. Laboratory work and reading. Continuation of Course 42. *Three, four, or five hours.* Professor GOMBERG and Dr. CONE.

44. The Chemistry of Alkaloids and Drug Assaying. Lectures and laboratory. *Four to seven hours.* Professor SCHLOTTERBECK. and Professor STEVENS.

Course 44 must be preceded by Courses 5 and 7.

46. Seminary in Special Topics. Lectures and reading. *Two hours.* Professor GOMBERG.

Course 46 must be preceded by Course 7 and Course 42.

47. Organic Analysis. Food analysis and the technical examination of various organic products such as are used in the arts, manufactures, etc. Laboratory work with collateral reading. *Credit to be arranged.* Professor GOMBERG.

Course 47 requires special permission and must be preceded by Courses 5, 7, and 42.

49. Original Investigation in Organic Chemistry. Laboratory work. *Credit to be arranged.* Professor Gomberg and Dr. Cone.

Course 49 must be preceded by Courses 7 and 42, and requires special permission.

METALLURGY

FIRST SEMESTER

1. Fuel and Refractory Material, Iron and Steel. Lectures and recitation. Five recitation sections. *Two hours.* Professor Campbell and Mr. Ware.

Course 1 must be preceded by Course 3 or 3*a* in Chemistry.

SECOND SEMESTER

[2. Structure of Metals. Descriptive study of the influence of mechanical and heat treatment upon the microstructure and properties of metals and alloys. Lectures and reading. *One hour.* Mr. Zimmerschied.

This course must be preceded by Course 1.

Omitted in 1909-1910.]

[3. Metallography. Laboratory course on the microscopic structure of metals and alloys as related to their physical and chemical properties. *One hour.* Mr. Zimmerschied.

This course must be preceded or accompanied by Course 2.

Omitted in 1909-1910.]

MINERALOGY AND PETROGRAPHY

Courses 1, 4, 5, and 9 are designed to meet the needs of students of Civil Engineering, Forestry, and Pharmacy, teachers of the sciences in secondary schools, and others who desire a knowledge of the more common minerals and rocks, as well as the methods employed in their determination. Courses 2, 5, 9, and 12 are especially adapted to students of Geology, Chemical Engineering, and others who desire a more comprehensive knowledge of the subject. For advanced students in Geology, Courses 2, 5, 6*a*, 9, 10, and 11 are strongly recommended. Students pursuing advanced work in light in the department of Physics are advised to take Courses 2, 3, and 6. Aside from the more general courses, students specializing in Mineralogy are required to take Courses 3, 6, 7, 8, 10, 11 and 12. All courses are given in the Mineralogical Laboratory in the basement of Tappan Hall.

FIRST SEMESTER

1. Elements of Mineralogy. Lectures and laboratory work. *Two hours.* Professor Kraus, Mr. Hunt, and assistants.

This course includes the elements of crystallography, physical and chemical properties, occurrence, uses, and determination of the more common minerals. For this course a knowledge of elementary inorganic chemistry is necessary.

2. General Mineralogy. Lectures and laboratory work. *Five hours.* Professor Kraus, Mr. Hunt, and assistants.

Students who have successfully completed Course 1 may elect this course as Course *2a* and receive *three hours* credit.

Principles of crystallography, physical and chemical properties, origin, formation, decomposition, distribution, uses and determination of the more important minerals. Prerequisites, Chemistry 2 and 3.

3. Crystal Measurements. Measurement, calculation, and projection of crystals. Lectures and laboratory work. *Three hours.* Professor Kraus and Mr. Hunt.

This course is given both semesters and may be pursued for either one or two semesters. Prerequisite, Course 2.

4. Determinative Mineralogy. Laboratory work. *Two hours.* Mr. Hunt and Mr. Turner.

Intended for students who have completed Course 1 and wish to become more proficient in the determination of minerals by means of their physical characters.

5. Qualitative Blowpipe Methods. Lectures and laboratory. *Two hours.* Mr. Hunt.

This course involves the use of blowpipe reactions upon charcoal and plaster tablets, as well as other chemical methods useful in the determination of minerals. Prerequisites, Course 2, or Courses 1 and 4. Since only a limited number can be accommodated in this course, students are advised to consult the instructor as early as possible.

8. Research Work. Laboratory work. *Credit to be arranged.* Professor Kraus, Mr. Hunt, and Mr. Clark.

For students, who are properly qualified, opportunity is given for original research along the lines of crystallographic measurements, chemical crystallography, the formation and origin of minerals, blowpipe methods, and petrography.

9. Lithology. Lectures and laboratory work. *Two hours.* Mr. Clark.

The lectures include, aside from a review of the rock-forming minerals, a discussion of the origin, modes of occurrence, alterations, methods of determination and uses of the more important rocks. In the laboratory the student is required to determine by means of the macro-physical properties a large number of rock specimens. Numerous field excursions will also be made in order to acquire facility in the rapid determination of rocks in the field. Prerequisites, Mineralogy 1 and Geology 1.

10. Petrography. Lectures and laboratory work. *Three hours.* Mr. Clark.

After reviewing the optical characters and methods of investigation of crystals, the various properties of the important rock minerals are discussed in detail. The mineralogical and chemical composition, texture, genesis, forms of occurrence, and metamorphism of rock are then studied. The laboratory work is devoted to the systematic study of rock minerals and rocks with the aid of the polarizing microscope. Prerequisites, Mineralogy 2 or 1 and 4, 6 or *6a*, and 9.

12. Quantitative Blowpipe Methods. Reading and laboratory work. *Two hours.* Mr. HUNT.

Practice in assaying by blowpipe methods of various kinds of ores, especially those of gold and silver. Prerequisite, Course 5.

SECOND SEMESTER

1. Elements of Mineralogy. Lectures and laboratory work. *Two hours.* Professor KRAUS, Mr. HUNT, Mr. CLARK, and assistants.

This course includes the elements of crystallography, physical and chemical properties, occurrence, uses, and determination of the more common minerals. For this course a knowledge of elementary inorganic chemistry is necessary.

3. Crystal Measurements. Measurement, calculation, and projection of crystals. Lectures and laboratory work. *Three hours.* Mr. HUNT and Mr. CLARK.

This course is given both semesters and may be pursued for either one or two semesters. Prerequisite, Course 2.

4. Determinative Mineralogy. Laboratory work. *Two hours.* Mr. HUNT.

Intended for students who have completed Course 1 and wish to become more proficient in the determination of minerals by means of their physical characters.

5. Qualitative Blowpipe Methods. *Two hours.* Mr. HUNT.

This course involves the use of blowpipe reactions upon charcoal and plaster tablets, as well as other chemical methods useful in the determination of minerals. Prerequisites, Course 2, or Courses 1 and 4. Since only a limited number can be accommodated in this course, students are advised to consult the instructor as early as possible.

6. Physical Crystallography. Lectures and laboratory work. *Four hours.* Professor KRAUS, Mr. HUNT, and Mr. CLARK.

This course involves a critical study of the various properties of crystals, including the use of the polarizing microscope and other crystallographic-optical instruments. Must be preceded by Course 2 and, if possible, by Course 3.

Students desiring to study only the optical properties of crystals may elect this course as *6a* and receive *three hours credit.*

7. Current Literature of Mineralogy. *One hour.* Professor KRAUS, Mr. HUNT, and Mr. CLARK.

The instructors and advanced students meet once a week to discuss important current literature.

8. Research Work. Laboratory work. *Credit to be arranged.* Professor KRAUS, Mr. HUNT, and Mr. CLARK.

   For students, who are properly qualified, opportunity is given for original research along the lines of crystallographic measurements, chemical crystallography, the formation and origin of minerals, blowpipe methods, and petrography.

9. Lithology. Lectures and laboratory work. *Two hours.* Mr. CLARK.

   The lectures include, aside from a review of the rock-forming minerals, a discussion of the origin, modes of occurrence, alterations, methods of determination, and uses of the more important rocks. In the laboratory the student is required to determine by means of the macro-physical properties a large number of rock specimens. Numerous field excursions will also be made in order to acquire facility in the rapid determination of rocks in the field. Prerequisites, Mineralogy 1 and Geology 1.

11. Petrography. Lectures and laboratory work. *Three hours.* Mr. CLARK.

   This is a continuation of Course 10.

GEOLOGY

The courses in Geology are planned to meet the requirements of: (a) those desiring a general knowledge of geology as part of a liberal education (Courses 1, 2, and 3); (b) students of engineering whose profession makes some knowledge of geology essential; (c) teachers of science in secondary schools (Courses 1, 2, 3, and 13); (d) men who are to have in their hands the control or operation of mines (See the announcement concerning mine administration under Courses in Commerce); (e) consulting geologists and geological engineers (See a special announcement of the six-year course in engineering) and (f) professional geologists. Students intending to become professional geologists are advised to be well grounded in physics and chemistry and to take a full year of work in mineralogy. Those intending to specialize in paleontology are required to have some knowledge of elementary biology. Except for Courses 3, 12, and 13, Course 1 or its equivalent is a necessary prerequisite. The more advanced courses of the department, which interest a relatively small number of students, are generally given in alternate years.

Research is especially encouraged along the lines of structural geology, paleontology, tectonic geography, glacial geology, and seismic geology. One or more advanced students may generally make arrangements for summer field work in connection with collecting trips in paleontology.

FIRST SEMESTER

1. Elements of Geology. Lectures and recitations, supplemented by excursions during the open season and by laboratory work during the winter months. Several quiz and laboratory sections. *Three hours.* Professors HOBBS and CASE, Mr. SCOTT and assistants.

2. Historical Geology. An outline history of the development of the continent and of the appearance and extinction of plants and animals, from the records in the rocks. Lectures and laboratory. *Three hours.* Professor CASE and assistant.

3. Physiography. A course especially recommended to teachers. Lectures and laboratory work, with recitations, which treat of physiographic processes and the genesis of earth features. *Three hours.* Mr. SCOTT and assistant.

   Excursions to points in the vicinity of Ann Arbor will serve to illustrate especially the topographic features of lake shores, of river erosion, and of a glaciated country.

5. Seismic Geology. A study of earthquakes from both the geological and geophysical sides. The distribution of seismicity over the globe, and within special provinces, the methods of locating lines of special danger from earthquakes, the mitigation of their disastrous consequences, the "distant" study of greater earthquakes, and the use of earthquake instruments, will all be included in the course. *Two hours.* Professor HOBBS.

   Work in Seismic Geology may be continued by special arrangement.

7. Structural and Stratigraphic Geology. A course of lectures in structural geology, twice weekly, supplemented by conferences and reports made after study of selected geological folios issued by the United States Geological Survey. The object of the course is not merely to familiarize the student with the structures characteristic of rock formations, but also to afford a measure of skill in reading geologic maps and sections. Given in alternate years, beginning in 1909-1910. *Five hours.* Professor HOBBS and Mr. COOK.

   This may be elected with two hours credit by those who have taken Course 11 with five hours credit.

8. Current Literature of Geology. Advanced students of the department, and others who desire, will meet for reports and discussions of the recent literature of geology. *No credit given.* Professors HOBBS and CASE, Mr. SCOTT, Mr. COOK, and Mr. LEVERETT.

[9. Vertebrate Paleontology. A course in comparative osteology and the morphology of the hard parts of vertebrates. Especial attention is paid to the origin and development of structures in extinct forms which lead up to the living ones. The facts of paleontology are brought to bear on the questions of adaptive radiation and the migration of faunas. *Five hours;* given in alternate years, beginning in 1910-1911. Professor Case.]

11. Development of the North American Continent. A course of lectures given twice weekly supplemented by conferences and reports prepared after a study of geological folios issued by the United States Geological Survey. The folios studied are so chosen as to bring out in sequence the detail in the development of the North American Continent. Given in 1909-1910 and alternate years. *Four hours.* Professor Case and Mr. Allen.

13. Origin and Development of Vertebrate Animals and Man. A lecture course describing the ancestral forms with the lines of descent of the more important domestic and wild animals. The origin and descent of man is discussed as a special topic. *Two hours.* Professor Case.

SECOND SEMESTER

1. Elements of Geology. A repetition of Course 1 of the first semester. Lectures, a number of quiz and laboratory sections. Excursions on Saturday mornings after Easter. Professor Hobbs, Mr. Scott, Mr. Cook and assistants.

2. Historical Geology. A repetition of Course 2 of the first semester. Professor Case and assistants.

4. Systematic Invertebrate Paleontology. A course dealing with the chief forms of invertebrate fossils both from the organic standpoint of origin and development, and from the faunistic side as indicators of the different geological formations. Lectures and laboratory. *Five hours.* Professor Case and assistants.

Work in invertebrate paleontology can be continued by special arrangement.

6. Field Geology. A study of the methods of preparing field maps in geology. Each student, equipped with simple instruments, will prepare topographic maps of districts near Ann Arbor, and enter upon them the glacial formations represented. *Two or three hours, as arranged.* Mr. Scott.

[10. History of Geology. An advanced course treating of the development of the science of Geology and of the lives and teachings of its founders, given in 1910-1911 and alternate years. *Five hours.* Professor Hobbs.]

12. Elementary Meteorology. This course is designed to follow the course in physiography and is an elementary treatment of the dynamics of the atmosphere. In it will be discussed the properties and movements of the atmosphere, weather and its variations, with some account of weather prediction. *Three hours.* Mr. Scott.

14. Tectonic Geology. An advanced course which treats of the larger problems of the tectonics of the globe as developed especially by Eduard Suess in his great work, *The Face of the Earth*. The work will be conducted by reports and discussions on the seminary plan of specially selected chapters from the three volumes of the work cited. *Five hours.* Professor HOBBS.

15. Soil Geology. A comprehensive survey of the subject, including the origin of soils, their physical and chemical constitution, the influence of climate on soil fertility, irrigation and drainage, tillage, fertilizers, etc., and a consideration of the regolith of the United States in relation to geologic, physiographic, and climatic factors. *Three hours.* Mr. COOK.

16. Economic Geology. A general course treating of the nature and distribution of metallic and non-metallic mineral resources, with special emphasis on ores of prime industrial importance. A course in mineralogy is a prerequisite. *Three hours.* Mr. COOK.

[17. Metamorphism and Ore Deposits. A study of geology from the physico-chemical standpoint with special reference to the nature, genesis, and exploitation of ore deposits. This course is intended for students who have completed Mineralogy 2, or its equivalent, and Geology 1 and 2. Geology 16 should precede this course, but is not required of students who are otherwise qualified. Given in 1910-1911 and alternate years. *Five hours.* Mr. ALLEN.]

18. Glacial Geology. A course in the interpretation of glacial features given by lectures. Criteria for correlation of drift sheets and comparison of American with European deposits will be introduced. Given in alternate years beginning in 1909-1910. *One hour.* Mr. LEVERETT.

19. Geology of the Lake Superior Region. A study of the principles of Pre-Cambrian geology and their practical application to field and laboratory study. Special attention is given to the geology of the Lake Superior Region, geologically the most important of the Pre-Cambrian areas from both the scientific and the economic standpoints. The course includes a detailed study of the iron and copper deposits of the region. Geology 1 and 2 and a course in mineralogy are prerequisites. Given in alternate years beginning in 1909-1910. *Three hours.* Mr. ALLEN.

[20. Physiography and Glacial Geology of Europe. A course of twelve lectures dealing with (1) the main physiographic features of Europe, (2) the manner and the order of their development, and (3) their relation to the peopling of the continent. Given in alternate years beginning in 1910-1911. *One hour.* Mr. LEVERETT.]

21. Glacial Field Studies. Weekly field excursions to study the glacial formations accessible from Ann Arbor. Supplementary to Courses 18 and 20. The excursions are made different in consecutive years so that advanced students particularly are advised to repeat the course. Saturday afternoons after Easter vacation. *One hour.* Mr. LEVERETT.

22. Research Work. The department is prepared to direct research work along five distinct lines, viz., in seismic geology, in tectonic and structural geology, in glacial geology, in vertebrate paleontology, and in problems involved in the deposition of ores. Professors HOBBS and CASE, Mr. LEVERETT, and Mr. ALLEN.

GENERAL BIOLOGY

The courses in General Biology are carried on by co-operation between the departments of Botany and Zoology, and are described in greater detail under Zoology 1 and 2 and Botany 1 and 2. They should be taken in the student's first year. In selecting them, two class cards should be deposited with the Registrar, one for botany and one for zoology. The laboratory fee of four dollars for each course is payable to the University Treasurer, two on account of the botanical laboratory and two on account of the zoölogical laboratory. The receipts should be presented to the respective instructors.

The attention of students who propose eventually to take up the study of medicine is called to the announcement of the combined course in the Literary and Medical Departments, leading to the degrees of Bachelor of Arts and Doctor of Medicine. (See page 207.)

FIRST SEMESTER

1. Elements of Biology. A study of typical species of plants and animals with reference to structure, function, development, and relationship. Lectures and laboratory work. *Four hours.* Assistant Professor POLLOCK, Dr. KAUFFMAN, Dr. HUS, Dr. PEARSE, and Dr. HEGNER.

SECOND SEMESTER

2. Elements of Biology. Continuation of Course 1. Lectures and laboratory work. *Four hours.* Assistant Professor POLLOCK, Dr. KAUFFMAN, Dr. HUS, Dr. PEARSE, Dr. HEGNER, and Dr. DANIEL.

ZOOLOGY

The work of the zoological department is planned to meet the needs of the following classes of students:

1. Those seeking as part of a liberal education a knowledge of the concrete facts and the theories of biology. Such students should take at least the courses listed as introductory, but may in addition pursue to advantage any of the following courses: 3*b*, 4, 8, 8*a*, 9, 10, 21.

2. Students who are preparing to study medicine or dentistry and who have had the courses in General Biology or their equivalent, should take Courses 9, 5, 8, 10, and 18, in the order named.

3. Students of Forestry are required to take, after Courses 1 and 2 in General Biology, Courses 3, 20, 6, and 7, and should, if possible, elect them in the order named. They may profitably substitute for Course 20 the more detailed Courses 4 and 8*a*, and may advantageously take Course 21.

4. Students preparing to teach in secondary schools should elect, after Courses 1 and 2 in General Biology, Courses 3, 3*a*, 4, 6, 8, 8*a*, and 18*a*. This program may, upon consultation with the head of the department, be varied to fit individual needs.

5. Candidates for the higher degrees should consult the graduate announcement. Candidates for the degree of Doctor of Philosophy will usually take all the undergraduate courses, after which they may register in the more advanced courses. Their work should be selected only after consultation with the zoological faculty, but will always include Courses 12 and 13.

The Zoological Laboratory occupies the second and third floors of the South Wing of University Hall. It is described on page 55.

All courses in Zoology, with the exception of Courses 3, 3*a*, *should be preceded* by Courses 1 and 2 in General Biology or their equivalent. The courses in General Biology may be accompanied by Courses 3 and 3*a*. Subsequent work may be varied to suit individual needs, but the courses should be chosen under advice of the instructors.

The Department of Zoology does not offer courses on fossil animals, but students of Zoology may consult the announcement of the department of Geology, where courses in *Paleontology* are described.

The *length of the laboratory period* varies with the capacity of the individual student, but is ordinarily three hours. These should be consecutive hours.

A laboratory fee of one dollar for each credit hour is required in courses that include laboratory or field work. The fee should be paid to the University Treasurer and the receipt presented to the instructor at the time of enrolling in the course.

Consultation Hours.—The zoological faculty will be in Room 14, U. H., from 11:30 to 12:15 and from 3 to 5 on the first two days of each semester for consultaton with students. During the remainder of the year the individual members will have consultation hours which may be found posted on the department bulletin board at the entrance to Room 15, U. H.

FIRST SEMESTER

I. Introductory Courses.

1. Elements of Animal Biology. Lectures and laboratory. Laboratory fee, $2.00. *Two hours.* Dr. PEARSE, Dr. HEGNER, and assistants.

An introduction to the study of protoplasm, of the cell and its activities, and of the structure, development, and biology of invertebrate animal types selected to illustrate general principles. In addition to serving as a presentation of biological principles the course especially emphasizes training in observation and in interpretation of zoological phenomena.

Course 1 is the zoological part of Course 1 in General Biology. It may be taken as a separate course only after obtaining written permission from the instructors in charge of Course 1 in General Biology.

3. Organic Evolution. *One hour.* Professor REIGHARD. (Other lecturers may, by invitation, take part in the course).

Illustrated lectures, serving as an introduction to zoology. The lectures deal with the evidences for evolution drawn from classification, structure, development, paleontology, distribution, and variation, and under the head of factors, with such topics as natural selection, the inheritance of acquired characters, and the influence of environment.

20. Short Course in Zoology. Recitations and laboratory. Laboratory fee, three dollars. *Three hours.* Dr. DANIEL.

This course aims to present, in brief outline, by means of a text-book, the more important facts concerning the animal kingdom and to illustrate them by specimens. It thus gives a bird's-eye view of the whole subject not possible in the more special courses. It is intended for forestry students, and as a review course for those preparing to teach zoology, but may be taken by others.

II. Advanced Courses.

4. Invertebrate Zoology. Lecture and laboratory. The structure, classification, distribution and activities of invertebrate animals. Laboratory fee, five dollars. *Five hours.* Dr. DANIEL.

The laboratory work consists of (1) the dissection of one or more type forms of each of the groups studied; (2) a comparison of forms related to the ones dissected; (3) a study, when possible, of the behavior of representative forms. All invertebrate groups are considered, but an effort is made to avoid repetition of work given in Course 1.

8. Vertebrate Zoology (Comparative Anatomy and Physiology). Lectures and laboratory. Laboratory fee, five dollars. *Five hours.* Professor REIGHARD.

Lectures on the comparative anatomy and comparative physiology of vertebrates. Laboratory work on vertebrate types, fish, amphibian, reptile, bird and mammal. The course may be taken independently of Course 8*a* or in preparation for it. It is of value to those students preparing to study medicine or dentistry who do not wish to take Course 8*a*, as well as to teachers and others.

9. Embryology of Vertebrates. Lectures and laboratory. Laboratory fee, five dollars. *Five hours.* Assistant Professor GLASER.

This course is an introduction to the principles of embryological science as illustrated by the development of vertebrates. The lectures will be comparative; the laboratory work, largely on the organogeny of the chick, will be supplemented by demonstrations of other forms. Considerable attention will be given to embryological laboratory methods. This course should be preceded by Zoology 2, or some other adequate equivalent in vertebrate anatomy, histology, and physiology.

11. German and French Reading. *Two hours.* Assistant Professor GLASER.

Classical biological treatises in German and French as well as important papers in the current literature will be selected. The purpose of the course is to cultivate facility in reading the literature of biology (without translation), and to familiarize the student with the technical terms of the science. At the same time the reading will not be haphazard but will be centered about certain definite lines of biological progress so as to form a coherent whole. It should be of value to students of zoology, botany, medicine and related sciences.

18. Comparative Histology. Lectures and laboratory. Laboratory fee, three dollars. *Three hours.* Dr. PEARSE.

This course deals with the structure and genesis of the chief types of animal tissues. Representative muscular, epithelial, sustentative and nervous tissues are studied. The subject is considered from a comparative standpoint, and the progressive differentiation of tissues in the animal series is dwelt upon.

This course, formerly announced as "Laboratory Methods and Management," will continue to give the necessary training in laboratory technique, but will emphasize subject matter rather than method. It is of value to medical students and teachers as well as to those whose interests are more general.

III. Special Courses for Undergraduates and Graduates.

16. Systematic Zoology.

The course may be elected as 16*a, two hours,* or 16*b, three hours.* Permission must first be obtained from Professor REIGHARD.

The time and place of carrying on the work should be arranged, in accordance with the group selected with the members of the staff named below:

The Fishes: Professor REIGHARD.
The Reptiles: Dr. RUTHVEN.
The Crustacea: Dr. PEARSE.

The purpose of this work is not only to increase our knowledge of the fauna of the region, but to give students an opportunity to become acquainted with the methods and aims of systematic work.

14. Research Work in Zoology.

For the year 1909-1910 the following lines of work are offered:

By Professor REIGHARD: The behavior of fishes and other lower vertebrates in their natural environment.

By Assistant Professor GLASER: Problems in the Physiology of Development.

By Dr. PEARSE: Anatomy and Physiology of the Nervous System, especially of Invertebrates.

By Dr. HEGNER: The Cytology of the Germ Cells of Arthropods.

By Dr. DANIEL: Work arranged on consultation.

This course is designed for graduate students, but undergraduates may, by special permission, elect it. All applications should be made to Professor REIGHARD. It may be elected as 14*a, two hours;* 14*b, three hours;* 14*c, five hours;* 14*d, ten hours.*

12. Literature of Zoology. *One hour.* Professor REIGHARD and Assistant Professor GLASER.

The instructors and advanced students form a Journal Club, which holds weekly meetings. Reports are made on research work done by members of the zoological staff, and on important current papers, and are followed by informal discussion. Although the meetings are open to all, the membership is restricted.

In addition to the reports on current literature some or all of the following topics will be considered:

a. History of zoology.
b. History and theory of zoological pedagogy.
c. Discussion of classical work on zoology.
d. Discussion of controverted biological problems of the day.

At the beginning of each year one or more current questions will be selected and portions of each subject assigned to members. At the end of the year symposia will be held on these subjects.

SECOND SEMESTER

I. Introductory Courses.

2. Elements of Animal Biology; the Structure, Development, and Biology of a Typical Vertebrate (the frog). Lectures and laboratory work. Laboratory fee, two dollars. Dr. PEARSE, Dr. HEGNER, and Dr. DANIEL.

Course 2 is equivalent to the zoological part of Course 2 in General Biology. It may be taken as a separate course only by written permission of the instructors in charge of Course 2 in General Biology.

3*a*. Heredity. Lectures. *Two hours.* Assistant Professor GLASER.

This course gives a non-technical exposition and discussion of the results of recent investigations in heredity. Among other topics, special attention will be paid to the following: Physical and mental inheritance in man, Mendel's law, the law of ancestral inheritance, the practical application of known principles of heredity in animal breeding. This course is of value to students specializing in sociology, psychology, and medicine, as well as to those following strictly zoological lines.

II. Advanced Courses.

3*b*. Organic Evolution, advanced course. *One hour.* Professor REIGHARD.

This course will deal especially with the method of evolution. In addition to occasional lectures it will include reports on reading, with discussions, and will afford an opportunity for the examination of illustrative material.

Some acquaintance with the subject matter of zoology or botany and a reading knowledge of French and German are desirable.

8*a*. Vertebrate Zoology (Natural History of Vertebrates, with special reference to the principles of Animal Behavior). Lectures and laboratory. Laboratory fee, four dollars. *Four hours.* Professor REIGHARD.

This course seeks to acquaint the student with the classification of vertebrates, with special reference to the local forms, and with their habits and external adaptations. It includes field work, carefully planned and regularly carried out, on the field recognition and habits of fishes, amphibia, birds and mammals. Emphasis is laid on methods of field observation and on field notes. The data collected, together with laboratory experiments, are made the basis of a discussion of the *principles of animal behavior.* The course is best preceded by Course 8, but exceptions may be made to this requirement.

7. The Fish and Game of Michigan. The Natural History, preservation and propagation of the fishes, birds and mammals of economic importance. Lectures and laboratory. Laboratory fee, three dollars. *Three hours.* Dr. HEGNER.

This course treats of the fishes, birds and mammals of Michigan, their classification, habits, economic importance, mode of capture, preservation and propagation. Excursions will be made for the observation of habits, for collecting and for the study of commercial fishing operations and propagation. The course is designed for forestry students, but is open to others.

5. Mammalian Anatomy. Quizzes and laboratory. Laboratory fee, five dollars. *Five hours.* Dr. DANIEL.

The course deals with the anatomy of a mammal (the cat) whose structure closely resembles that of man. It is meant for those who, for any reason, desire some knowledge of human anatomy but who find it impossible to pursue human dissection. While it may properly form part of a general culture course, it is of especial value to those intending to teach physiology in the secondary schools, or to enter upon a medical course.

10. Physiological Zoology. Lectures, recitations, and laboratory. Laboratory fee, four dollars. *Four hours.* Assistant Professor GLASER.

A course dealing with the processes that occur in living matter. The subjects considered are: the composition of living substance; theories as to its origin; the phenomena of metabolism; of stimulation; of energy transformation; and of reproduction. The aim of the course is to serve as an introduction to modern experimental zoology, and the larger problems of general physiology. Some knowledge of physics and chemistry is presupposed. Those who desire to do so, and who are properly qualified, may be allowed to do special work in connection with Course 15.

6. Entomology. Lectures and laboratory. Laboratory fee, three dollars. *Three hours.* Dr. HEGNER.

A course in the habits, life histories, and structure of insects. While seeking to acquaint the student with insect life and structure in general, the course is especially adapted to meet the needs of forestry students and of those particularly interested in the economic phases of entomology.

9. Zoogeography. Lectures and laboratory. Laboratory fee, three dollars. *Three hours.* Dr. RUTHVEN.

This course is given in 1909-1910, but will be omitted in 1910-1911.

The course is a discussion of the distribution of animals, approached not from the standpoint of the present distribution of animal groups, but rather from the point of view of the factors involved in migration and ecesis. It deals with those relations existing between the animal forms concerned and the environment, that have an influence upon distribution, and upon this basis an attempt is made to interpret the present conditions.

The lectures discuss the general subject and are supplemented by field and laboratory work upon the local fauna and museum material. The student thus becomes familiar with materials illustrative of the principles discussed in the lectures as well as with the methods of study.

18*a*. Zoology for Teachers. Lectures and laboratory. Laboratory fee, three dollars. *Three hours.* Dr. PEARSE.

The aim of this course is to give a general preparation for teaching in secondary schools. The lectures give a general survey of the field, and methods of teaching are considered. Laboratory work includes methods of collecting and preparing material; making reagents, charts, microscopic slides, etc.;

photography; museum methods; practice teaching. Opportunity will be given students to make sets of preparations which will be of use in secondary schools.

This course, formerly announced as "Laboratory Methods and Management," will continue to give the necessary training in laboratory and field technique, but will emphasize the pedagogical aspect of the subject. It will be given in 1909-1910, but may be omitted in 1910-1911.

[21. Fresh Water Biology. Lectures and laboratory. *Three hours.* Dr. PEARSE.

The course treats of the fresh water invertebrates, their classification, ecology, economic importance and of the quantitative methods of studying them. It is of use to forestry students in connection with Course 7, and to teachers, as well as of general interest.

Omitted in 1909-1910.]

III. Special Courses for Undergraduates and Graduates.

17. Systematic Zoology. Continuation of Course 16. The course may be elected as 17*a, two hours,* or 17*b, three hours.* Application should be made to Professor REIGHARD.

The subjects and the teachers are the same as in Course 16.

15. Research Work in Zoology. This course is a continuation of Course 14. It may be elected as 15*a, two hours;* 15*b, three hours;* 15*c, five hours;* 15*a, ten hours.* Application should be made to Professor REIGHARD.

For details, see Course 14.

13. Literature of Zoology. Continuation of Course 12. *One hour.* Professor REIGHARD and Assistant Professor GLASER.

Course 13 has the same restrictions as Course 12.

BOTANY

A year's work in General Biology is required to precede all subsequent courses in Botany, except Courses 1P, 4, 6 and 6*a*, and 28. Courses 1 and 2 in Botany are included in the year's work in General Biology.

Courses 1 and 2 are intended primarily for undergraduates. Courses 3, 4, 5, 6, 6*a*, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18 are for graduates and undergraduates. Courses 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, and 34 are primarily for graduates; but undergraduates may be admitted to them by special permission.

Students looking toward professional work may be helped by the following suggestions: Students in the Combined Literary and Medical Course, who intend to take General Biology, will find it best to elect it in their first year of residence. To secure an unqualified recommendation for teaching in high schools, students must have, besides the two courses in General Biology, a course in Experimental

Physiology, in Field Work, in Classification of Flowering Plants, in Plant Culture, in Plant Diseases, in Laboratory Methods and Management, and a year's study of the Current Literature of Botany. Those preparing for professional work in colleges and higher institutions should take, in addition to the foregoing courses, some line of investigation. For expert work in the examination of foods and preparations and as an introduction to industrial botany, Courses 1P, 4, 6, and 6*a* should be taken; and for professional work in plant pathology, Courses 1, 1*a*, 2, 2*a*, 3, 7, 8, 9, 10, 12, 13, 16, 25, and 26, besides investigation in plant pathology. Those preparing for professional forestry should take Courses 1, 2, 7, 8, 9, 10, 12, 13, and 16. Those preparing for professional or practical work in plant breeding should take Courses 1, 2, 5, 7, 8 or 9, 10, 14, 12 or 13 or 15, 16, and 18, followed by laboratory and field study extending through one or more growing seasons.

FIRST SEMESTER

1. Elements of Biology (Plant Life). Lectures and laboratory work. *Two hours.* Assistant Professor POLLOCK. Laboratory work, as announced under Course 1 in General Biology.

A study will be made of the properties and activities of protoplasm, developmental history, evolution of structure and function, and relation to environment. The material for study will be selected from simple organisms, chiefly algæ and fungi.

Course 1 is equivalent to the botanical part of Course 1 in General Biology. It is not to be elected separately by first year students, nor by others, except with the written approval of the instructors in botany and zoology.

1P. Elementary Structural Botany. Lectures and laboratory work. *Two hours.* Dr. KAUFFMAN.

This course is primarily for pharmacy students; literary students will be admitted only by special permission.

1*a*. Morphology, Physiology, and Classification of the Algæ and Fungi. Lectures and laboratory work. *Two hours.* Dr. KAUFFMAN.

An outline of the principal orders, and a study of the morphology and physiology of an example of each.

3. Reproduction and Embryology of Flowering Plants. Lectures and laboratory. *Three hours.* Professor NEWCOMBE.

This course treats of the morphology of the flower, of the development of the pollen and embryo sac, of fertilization and the development of the embryo. In the preparation of their own material, students obtain practice in technique.

5. Plant Culture and Breeding. Lectures and laboratory. *Three hours.* Dr. HUS.

This course attempts to lay the foundation for a knowledge of the modern art and science of plant culture and breeding. It will include a study of the conditions for growth, the relations of plants to soils, the functions of parts, and the various means used to produce and propagate varieties, such as selection, budding, grafting, cross-fertilization, and hybridizing.

7. General Morphology and Physiology. Lectures and laboratory. *Five hours.* Professor NEWCOMBE.

Cell structure, tissue structure, and organography; the cell theory, mitosis, and heredity; instruction in technique.

9. Morphology and Classification of Fungi. Lectures and laboratory. *Three or more hours.* Assistant Professor POLLOCK.

This course with Course 8, is preparatory to research in pathology. The first part of the semester will be spent in collecting and classifying fungi, with special reference to those forms causing diseases of trees. The later work will include the study of the larger groups, and the preparation of lists of literature and reports on assigned topics.

11. Experimental Physiology. Special Problems. *Two or more hours, to be arranged.* Professor NEWCOMBE.

Course 11 is intended to be introductory to research. It is open to those only who receive special permission.

13. Biological Relations of Plants. Lectures and laboratory. *Three hours.* Assistant Professor BURNS.

Study of the plant societies about Ann Arbor, with special reference to plants occurring in various types of wood-lots; an analysis of the factors governing the various habitats for plant growth; study of ecological plant anatomy.

15. Plant Ecology. Lectures and laboratory. *Three hours.* Assistant Professor BURNS.

Study of laws determining the geographical distribution of plants; association of plants in societies, general distribution of forests, meadows, and deserts. This course is given in alternate years. It will be omitted in 1910-1911.

17. Laboratory Methods and Management. Teachers' Course. *Two hours.* Professor NEWCOMBE and the department staff.

In this course the student is made acquainted with the means for planning and equipping a laboratory; with the collection and preparation of plants for morphological study, for museum and herbarium; with the making of stains and reagents; with photography and the preparation of lantern slides; and with the planning and conduct of courses of study.

19. Investigations in Physiology. This work may be elected as *19a, three hours; 19b, five hours; 19c, eight hours; 19d, ten hours.* Professor NEWCOMBE.

21. Investigations in Mycology and Plant Diseases. This work may be elected as *21a, three hours; 21b, five hours; 21c, eight hours; 21d, ten hours.* Assistant Professor POLLOCK.

23. Investigations in Bionomics. This work may be elected as *23a, three hours; 23b, five hours; 23c, eight hours; 23d, ten hours.* Assistant Professor Burns.

25. Current Literature of Botany. *One hour.* Professor Newcombe.

Course 25 constitutes a Journal Club in which important papers on botany are reviewed and discussed by the instructors and advanced students. All students are admitted to the meetings, but only advanced students may elect the course.

27. Investigations in the Physiology of the Reproductive Organs. This work may be elected as *27a, three hours; 27b, five hours; 27c, eight hours; 27d, ten hours.* Professor Newcombe and Dr. Kauffman.

29. Investigations in Plant Breeding. This work may be elected as *29a, three hours; 29b, five hours; 29c, eight hours; 29d, ten hours.* Dr. Hus.

Those wishing to do research in plant breeding should plan to remain at the University through at least one summer.

SECOND SEMESTER

2. Elements of Biology (Plant Life). Lectures and laboratory. *Two hours.* Assistant Professor Pollock.

Continuation of Course 1, embracing the alternation of generations and the general biology and physiology of liverworts, mosses, ferns, gymnosperms, and flowering plants.

2a. Morphology, Physiology, and Classification of Liverworts, Mosses, and Ferns. Lectures and laboratory work. *Three hours.* Dr. Kauffman.

This course is a continuation of Course *1a.* Both aim primarily to secure acquaintance with the local cryptogamic flora.

[4. Economic Botany. Lectures, with accompanying demonstrations and lantern views. Assistant Professor Burns.

Relation of the science of botany to industry. Distribution of plants of commercial importance, and laws determining plant distribution. Importation and acclimatization of foreign plants. Variation of raw materials and their improvement by breeding and selection. Origin and propagation of horticultural varieties. Bacteriology in its relation to industry. Important diseases of plants. This course is given in alternate years. It will be omitted in 1909-1910.]

6. The Microscopy of Foods and Drugs. Lectures and laboratory. *Three hours.* Professor Schlotterbeck.

6a. Advanced Microscopy of Foods, Drugs, and Spices. *Two or four hours.* This course is intended for those fitting themselves to be food analysts. Professor Schlotterbeck.

8. Mycology and Pathology. Lectures and laboratory work. *Three hours.* Assistant Professor Pollock.

A study of the various groups of fungi, their life history and artificial cultivation, and their relation to plant diseases.

10. Experimental Physiology. This course may be elected as: 10*a*, *three hours;* 10*b*, *five hours.* Professor NEWCOMBE.

A study of the relation of plants to their environment as manifested by the phenomena of nutrition, growth, and irritability.

12. Field and Forest Botany. Lectures and laboratory. *Three hours.* Assistant Professor BURNS.

Classification of woody plants; identification of trees and shrubs; relation of plants to light, soil, moisture, and the general factors of the environment; the identification of woods by lens and microscope.

Course 12 must be preceded by Course 13, or its equivalent, in the case of undergraduate students.

14. Cytology. Cell-structure and Physiology. *Three hours.* Lectures and laboratory work.

A course in the structure and physiology of the plant cell; nuclear and cell division studied by modern experimental methods; the structure and behavior of Chronosomes, and their significance in the present theories of fertilization and heredity.

[16. Classification and Local Distribution of Flowering Plants. Lectures, laboratory and field work. *Three hours.* Dr. KAUFFMAN.

This course is intended to develop the principles and aims of systematic botany. The student will become acquainted with most of the local plant families, and will make an intensive taxonomic study of some genus. Students are assigned definite areas on which to make a floristic survey.

Omitted in 1909-1910.]

18. Plant Variation and Breeding. Advanced course. This work may be elected as 18*a*, *three hours, or* 18*b*, *six hours.* The three-hour course will consist of lectures, demonstrations, and reading. The six-hour course will consist of lectures, demonstrations, readings, and laboratory and field work. Dr. HUS.

20. Investigations in Physiology. This work may be elected as 20*a*, *three hours;* 20*b*, *five hours;* 20*c*, *eight hours;* 20*d*, *ten hours.* Professor NEWCOMBE.

22. Investigations in Mycology and Plant Diseases. This work may be elected as 22*a*, *three hours;* 22*b*, *five hours;* 22*c*, *eight hours;* 22*d*, *ten hours.* Assistant Professor POLLOCK.

24. Investigations in Bionomics. This work may be elected as 24*a*, *three hours;* 24*b*, *five hours;* 24*c*, *eight hours;* 24*d*, *ten hours.* Assistant Professor BURNS.

26. Current Literature of Botany. Continuation of Course 25. *One hour.* Professor NEWCOMBE.

30. Investigations in the Physiology of the Reproductive Organs. This work may be elected as 30*a*, *three hours;* 30*b*, *five hours;* 30*c*, *eight hours;* 30*d*, *ten hours.* Professor NEWCOMBE and Dr. KAUFFMAN.

34. Investigations in Plant Breeding. This work may be elected as 34*a, three hours;* 34*b, five hours;* 34*c, eight hours;* 34*d, ten hours. Hours to be arranged.* Dr. Hus.

Those wishing to do research in plant breeding should plan to remain at the University through at least one summer.

36. Botanical Readings in German. *One hour.* Dr. Hus.

LANDSCAPE DESIGN

Course 1 is open to all students. Courses 3, 5, and 6 are open only to students working for the degree in Landscape Design. Course 6 must be preceded by Course 5.

FIRST SEMESTER

3. Development of Landscape Gardening in England. Lectures with collateral reading and reports. *Two hours.* Mr. Tealdi.

The object of this course is to follow the gradual development of gardening in England from the earliest efforts to the present day, laying special stress upon the transition of styles and the development of the Naturalistic or English style.

5. Study of Materials for Planting Design. Trees and Shrubs. Lectures, reports, planting plans, and field work. *Three hours.* Mr. Tealdi.

Course 5 is intended to make the student familiar with the shrubs and the trees generally used in landscape gardening. It is not intended as a course in botany, courses in botany and ecology being prerequisite to this course. The æsthetic values of plants are to be studied,—their shape, size, habits, favorite habitat, their autumn coloring both of leaves and fruit, and their general aspects in autumn and winter. One field trip a week is taken, and a report of the trip is required. The lectures are illustrated by the use of the stereopticon.

SECOND SEMESTER

1. Introduction to the Study of Landscape Design. Lectures, collateral reading, and reports. *Two hours.* Mr. Simonds and Mr. Tealdi.

Course 1 is designed to give a general knowledge of the variety of problems to be met with in the practice of landscape gardening. It is not intended as a technical course, such as a course in construction or design; these subjects are treated in Courses 10 to 17. The general problems are treated separately, and special stress is laid upon the subject of good taste and common sense in all problems, from the simple arrangement of the city yard and window box to the laying out of a country estate. The lectures are illustrated by the use of the stereopticon.

6. Study of Material for Planting Design: Trees, Shrubs, and Perennials. Lectures, planting plans, reports, and field work. *Three hours.* Mr. Tealdi.

Course 6 is a continuation of Course 5. The trees and shrubs are studied in relation to their flowering and leafing characteristics and their ornamental values in spring and summer. Perennials are studied also along the same lines. The lectures are illustrated by the use of the stereopticon.

FORESTRY

Course 1 is designed to meet the needs of teachers, students of political economy, and others who wish to acquire a general knowledge of forestry, but is open only to students who have completed their second year of residence at the University and have a fair preparation in botany. All other courses are for students aiming to make forestry a profession, and are open to other students only by special permission. Courses *2a, 2b,* and *2c* should be taken in the order named. Students intending to take work in forestry should consult Professor ROTH, who may be found in Room 26, U. H., *M, T, Th, F,* at 11 A. M., or at his home. Prospective forestry students are referred to the bulletin on forestry for further details.

FIRST SEMESTER

2a. Silviculture. Lectures and field work. *Three hours.* Professor MULFORD.

Introductory, including forest description, the study of soils, climate, and other site factors, and their influence on forest growth; influences exerted by the forest upon climate, stream flow, soil, etc. This course, when taken by undergraduate students, must be preceded by Botany 7, 12, and 13, and by Forestry 1.

2c. Silviculture. Lectures and field work. *Four hours.* Professor MULFORD.

Care of forests, including thinning; protection of forests against fire and other enemies. This course, when taken by undergraduate students, must be preceded by Zoology 6.

3a. Forest Mensuration and Survey. *Four hours.* Assistant Professor HILL.

Methods of measuring the volume of the individual tree and of entire stands of timber; timber estimating; study of the rate of growth and yield of individual trees and of entire stands of timber; rough methods of forest surveying.

4. Forest Utilization. Lectures. *Four hours.* Professor ROTH.

Uses of timber; points of production and market; methods of lumbering, milling, and marketing; minor forest industries. This course must be preceded by Forestry *2a* and *2b, 3a* and *3b.*

5a. Forest Measurement. Lectures and field work. *Four hours.* Professor ROTH.

General forest surveys and preparation of working plans; administration and regulation of the field and office work in the care of a large tract of timber, and the methods of calculation involved in judging the value of forests and forest operations. Open only to graduate students.

6*a*. Dendrology. *Three hours.* Assistant Professor Hill.

Monographic study of forest tree species; their classification, identification, distribution, life history, requirements, behavior in the forest, and importance; forest regions.

8*a*. Seminary. *Two or three hours, to be arranged; no credit allowed.* Professors Roth and Mulford and Assistant Professor Hill.

Reports on special topics are intended to familiarize the student with the topics themselves, sources of information, and methods of presentation. This course is open only to candidates for the forestry degree in their last year.

SECOND SEMESTER

1. Introduction to Forestry. Lectures. *Four hours.* Professor Roth.

A general presentation of the subject, its history, objects, and methods, as well as economic importance.

2*b*. Silviculture. Forest Reproduction. Lectures and field work. *Five hours.* Professor Mulford.

Artificial and natural reproduction of forests, of forestation; including practice in seed-bed and nursery work and forest planting and sowing.

2*d*. Silviculture. Silvicultural Problems. *Two hours.* Professor Mulford.

3*b*. Forest Mensuration. Continuation of Course 3*a*. *Three hours.* Assistant Professor Hill.

5*b*. Forest Management and Survey. Continuation of Course 5*a*. *Four hours.* Professor Roth.

7. Wood Technology. Lectures and laboratory work. *Two hours.* Assistant Professor Hill.

8*b*. Seminary. Continuation of Course 8*a*. *No credit allowed.* Continued only to spring recess. Professors Roth and Mulford, and Assistant Professor Hill.

COURSES IN OTHER DEPARTMENTS OPEN TO ALL STUDENTS

The following courses in other Departments are open to election without special permission:

Architecture, Course 15.
Drawing, Courses 2, 3, 7, 8, 9, 9*a*, 10.
Roman Law, Courses 1, 10.
Hygiene, Course 1.

For description of these courses, see under the different departments below.

COURSES IN OTHER DEPARTMENTS

OPEN, UNDER CERTAIN CONDITIONS, TO STUDENTS IN THE DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS

The following courses, given in other Departments of the University, may, in certain cases, be elected by students in the Department of Literature, Science, and the Arts. For the conditions of such election, see the preliminary statements under the various headings below, or consult the Registrar of the Department of Literature, Science, and the Arts.

Course 4 in Anatomy, in the Department of Medicine and Surgery, and Course 5 in Shop Work, in the Department of Engineering, may be elected by any Literary student upon the recommendation of the head of the department of Philosophy or of Physics, respectively, and upon the approval of the Dean of the Department of Literature, Science, and the Arts.

DEPARTMENT OF ENGINEERING

DRAWING

In regard to Courses 1, 4, 5, 6, *6a*, 10, 11, 21, 22, 23, 24, and 25 see also the Special Announcement of the Department of Engineering. For numbers of courses which may be elected without special permission, see page 200.

FIRST SEMESTER

1. Geometrical Drawing. *Four hours.*

2. Free-Hand Drawing. Application of the laws of perspective, light and shade, in the free-hand representation of form, by the use of pen and pencil. A general preliminary course. Two sections. *Two hours.* Miss Hunt.

   Sections are limited in number to 30 students.

4. Descriptive Geometry. Recitations and drawing. Nine sections. *Four hours.*

5. Advanced Projections and Stereotomy. *Four hours.* Professors Denison and Goulding and Mr. Bartlett.

   Course 5 must be preceded by Course 4.

6. Applied Projections and Drawing. *Two hours.*

   Course 6 must be preceded by Course 4.

8. Water Color Drawing. Advanced Composition and Still Life. *Two hours.* Miss Hunt.

   The section is limited in number.

   Course 8 must be preceded by Courses 2, 3, and 7.

9. Historic Ornament and Applied Design. *Three hours.* Miss Hunt.

10. Free-Hand Lettering. *Two hours.*
22. Architectural Drawing. *Two hours.*
23. Architectural Drawing. *One hour.*
25. Architectural Drawing. *Two hours.*

SECOND SEMESTER

1. Geometrical Drawing. *Four hours.*
2. Free-Hand Drawing. Application of the laws of perspective, light and shade, in the free-hand representation of form, by the use of pen and pencil. A general preliminary course. *Two hours.* Miss HUNT.

   Section is limited in number to 30 students.
3. Free-Hand Drawing (Advanced). Work from casts and still life in black and white. Rendering with charcoal, brush, and pencil. *Three hours.* Miss HUNT.

   Course 3 must be preceded by Course 2 or an equivalent.
4. Descriptive Geometry. Recitations and drawing. Eleven sections. *Four hours.*
5. Advanced Projections and Stereotomy. *Four hours.* Professors DENISON and GOULDING, and Mr. BARTLETT.

   Course 5 must be preceded by Course 4.

6*a*. Applied Projections and Machine Drawing. *Two hours.*

Course 6*a* must be preceded by Course 4.

7. Water-Color Drawing. Elementary drawing and coloring from copy. *Two hours.* Miss HUNT.

9*a*. Historic Ornament and Applied Design. (Continued.) *Three hours.* Miss HUNT.

10. Free-Hand Lettering. *Two hours.*
11. Spherical Projections. *One hour.* Professor DENISON.

    Course 11 must be preceded by Course 4.
23. Architectural Drawing. *Two hours.*

24*b*. Architectural Drawing. *One hour.*

26. Architectural Drawing. *Two hours.*

ARCHITECTURE

For other courses in Architecture see the Announcement of the Department of Engineering.

Course 15 may be elected without special permission, see page 200.

FIRST SEMESTER

[11. History of Architecture; Ancient. The buildings of Egypt, Assyria, Persia, Greece, and Rome. The historical conditions, building materials and methods, planning and design, and the sculptured and painted decoration and ornament of architecture will be studied by means of illustrated lectures, conferences, drawing exercises and research. *Two hours.* Professor LORCH.

Omitted in 1909-1910.]

13. History of Architecture; Medieval and Renaissance. The Gothic Architecture of France, England, Germany, Italy, and Spain, and the Architectural Work of the Early Renaissance in Italy. Illustrated lectures, conferences, drawing exercises, and research. *Two hours.* Professor Lorch.

15. General Course in the History of Architecture. *Two hours.* Professor Lorch.

The aim of this course is to give students seeking a liberal culture a survey of the development of the art of building. The temples, cathedrals, palaces and other characteristic monuments of the ancient, medieval, renaissance and modern styles, their design, sculpture and painted decorations will be studied by means of lectures illustrated by the stereopticon, and collateral reading. This course is open to all students in the University, but cannot be counted towards graduation in architecture.

For students of art and archæology desiring a more intensive study of the evolution of architecture, Courses 11, 12, 13, and 14 are recommended.

SECOND SEMESTER

12. History of Architecture; Medieval. The Early Christian, Byzantine and Romanesque Architecture of Italy, Byzantium, Central Syria, France, and Germany, and Sassanian and Mohommedan Architecture. The historical conditions, building materials and methods, planning and design, and the sculptured and painted decoration and ornament of architecture will be studied by means of illustrated lectures, conferences, drawing exercises and research. *Two hours.* Professor Ash.

14. History of Architecture; Renaissance and Modern. Architectural monuments during and since the Renaissance in Europe and architecture in the United States. Illustrated lectures, conferences, drawing exercises, and research. *Two hours.* Professor Ash.

SHOP PRACTICE

SECOND SEMESTER

5. Instrument Making. *Two hours.*

MECHANICAL ENGINEERING

FIRST SEMESTER

24. Prime Movers. *Three hours.* Professor Allen.

This course is offered primarily for Forestry students. It embraces a study of the steam engine, gas engine, and water turbine, together with the study of the various methods of transmitting the power from these prime movers. This subject is covered in a popular way and in addition, attention is given to the operation of the various machines.

This course should be preceded by Courses 1 and 2 in Physics.

DEPARTMENT OF MEDICINE AND SURGERY

PHYSIOLOGY

The courses in Physiology are arranged for those who intend to become physicians or dentists, those who propose to teach the subject, and those who contemplate making biology, physiology, or psychology a specialty.

Instruction is given by lectures, recitations, informal discussions, and laboratory work. In the laboratory the student learns to use the apparatus and methods employed in ordinary physiological experiments, and personally observes the principal facts of physiology. Advanced students are given an opportunity to begin research work.

Work in physiology may advantageously be preceded by courses in General Biology, Anatomy and Histology.

Literary students take Physiology with the Medical students. Courses 1 and 2 form one continuous course, the work being begun as Course 1 in the second semester and continued as Course 2 in the first semester of the following year.

The laboratory work of Course 3 is given in three sections, and may be elected the first half, or second half of the first semester, or the first half of the second semester. This course is open only to students who have taken Course 1, or have had equivalent work.

FIRST SEMESTER

2. Lectures and Recitations. Continuation of Course 1. *Five hours.* Professor LOMBARD.
3. Laboratory Work. *Three hours. Daily for eight weeks.* Professor LOMBARD.

SECOND SEMESTER

1. Lectures and Recitations. *Four hours credit.* Professor LOMBARD.
3. Laboratory Work. *Three hours.* Professor LOMBARD.
4. Physiological Experimentation. Teachers' course. *One hour.* Professor LOMBARD.
5. Research Work. *Three hours.* Professor LOMBARD.
   This course is open only to those who have taken Course 3.

ANATOMY

The courses in Anatomy are open to students taking the combined literary and medical course. Other students may take these courses by special permission from the Director of the Anatomical Laboratory and the Dean of the Department.

GIVEN EACH SEMESTER

1. Anatomy of the Arm and Leg. Laboratory and reading. *Four hours. Daily for eight weeks.* Professor STREETER and assistants.

2. Anatomy of the Abdominal and Pelvic Viscera. Laboratory and reading. *Four hours. Daily for eight weeks.* Professor Streeter and assistants.
3. Anatomy of the Head, Neck and Thorax. Laboratory and reading. *Four hours. Daily for eight weeks.* Professor Streeter and assistants.
4. Conferences in Anatomy. Recitations and demonstrations, supplementary to Courses 1, 2 and 3. *One hour.* Professor Streeter.
7. Anatomy of Nervous System and Special Sense Organs. Comparative and Embryological. Laboratory and reading. Professor Streeter.
8. Original Investigation in Problems of Vertebrate Morphology. Laboratory and reading. Professor Streeter.

GIVEN FIRST SEMESTER ONLY

7*a*. Anatomy of the Nervous System. Lectures and demonstrations. *Two hours.* Professor Streeter.

GIVEN SECOND SEMESTER ONLY

5. Reginal and Topographical Anatomy. Lectures, demonstrations and laboratory. *Three hours. Daily for six weeks.* Professor Streeter.

HISTOLOGY AND EMBRYOLOGY

The work in Human Histology and Embryology is conducted in the laboratory of Histology and Embryology, in the New Medical Building.

FIRST SEMESTER

1. Human Embryology, Histogenesis, General Histology, Organology (including organology of the central nervous system and special sense organs). Lectures, recitations, demonstrations and laboratory work. *Daily for semester. Seven hours.* Professor Huber, Dr. De Witt and assistant.

GIVEN EACH SEMESTER

2. Methods and Laboratory Technique in Histology and Embryology. *Hours arranged with the instructor.* 2*a*, 2 *hours;* 2*b*, 3 *hours.* Professor Huber.
3. Embryology and Microscopic Anatomy of the Central Nervous System and Special Sense Organs of Man. Laboratory work and reading. Elected as 3*a*, 3 *hours;* 3*b*, 5 *hours.* Professor Huber.
4. Research Work in Vertebrate Histology and Embryology. Professor Huber.

PHYSIOLOGICAL CHEMISTRY, BACTERIOLOGY, AND HYGIENE

The courses in these subjects, given by Professors VAUGHAN and NOVY, are arranged for the most part to meet the wants of students in the Department of Medicine and Surgery, and of students who propose to study medicine in the future.

Course 1 may be elected without special permission, see page 200.

GIVEN EACH SEMESTER

3. Practical Bacteriology. Laboratory work. *Daily for nine weeks,* beginning with the first and tenth week of the semester. *Three hours.* Professor NOVY and Dr. MCJUNKIN.

   Course 3 is designed especially for students who propose to study medicine, and is open to others only by permission.

5. Water Analysis. Laboratory work. *Three hours.* Professor VAUGHAN.
6. Food Analysis. Laboratory work. *Credit to be arranged.* Professor VAUGHAN.
7. Research Work. *Credit to be arranged.* Professor VAUGHAN or Professor NOVY.
9. Physiological Chemistry. Laboratory work. *Daily for nine weeks,* beginning the first and tenth week of the semester. *Three hours.* Professor NOVY and Mr. FORSYTHE.
10. Advanced Physiological Chemistry. Laboratory work. *Daily for nine weeks,* as in Course 9. *Three hours.* Professor NOVY and Mr. FORSYTHE.

GIVEN FIRST SEMESTER ONLY

2. General Bacteriology. Lectures. *Three hours.* Professor NOVY.
8. Physiological Chemistry. Lectures. *Three hours.* Professor VAUGHAN.

GIVEN SECOND SEMESTER ONLY

1. General Hygiene. Lectures. *Three hours.* Professor VAUGHAN.
4. Bacteriology. Special methods. Laboratory work. *Daily for nine weeks,* first half of semester. *Three hours.* Professor NOVY.

   Course 4 must be preceded by Course 3.

4*a*. The Pathogenic Protozoa. This course must be preceded by Course 4. Laboratory work. *Daily for nine weeks,* after spring recess. *Three hours.* Professor NOVY.

PHARMACOLOGY

SECOND SEMESTER

1. Pharmacology. Lectures and recitations. *Three hours.* Professor EDMUNDS.

EACH SEMESTER

2. Experimental Pharmacology. Laboratory work. *Daily for nine weeks. Three hours.* Professor EDMUNDS and Dr. LINDEMAN.

This course consists in the investigation of the effects of chemical agents (drugs and poisons) on living animals and tissue, and embraces the examination of the symptoms induced and their explanations on the basis of physiology and chemistry.

This course may be taken only with permission of the instructor.

DEPARTMENT OF LAW

The work of the first year in the Law Department may be elected by students on the Combined Literary and Law Course.

The Committee on Courses in Commerce has published an Announcement of courses in the Law Department which may be elected by candidates for the Commercial Certificate.

ROMAN LAW AND JURISPRUDENCE

The courses in Roman Law are closely associated with the work in Latin. Course 10 is required of candidates for a doctor's degree in Latin, with a minor in Roman Political Institutions. The course may be taken with profit by the student of Latin who is also interested in history or law.

FIRST SEMESTER

10. The Science of Jurisprudence. Lectures and recitations. *Two hours.* Professor DRAKE.

This is designed to give students of history and political science some of the fundamental notions of law as a scientific body of knowledge. Some account of the various schools of jurisprudence will be given, followed by a discussion of the essential principles of positive law. Holland's *Elements of Jurisprudence* is taken as the basis of the lectures and recitations of the course.

COMBINED LITERARY AND MEDICAL COURSE

Students desiring to obtain the degrees of Bachelor of Arts in the Department of Literature, Science, and the Arts, and of Doctor of Medicine in the Department of Medicine and Surgery, may, by enrolling on the combined Literary and Medical course, shorten from eight years to seven the time required to earn the two degrees.

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*The rules here laid down govern also the Combined Course leading to the Degree of Bachelor of Arts or Bachelor of Science in the Department of Literature, Science, and the Arts, and of Doctor of Medicine in the Homœopathic Medical College. All students entering upon the Combined Course must satisfy fully the requirements for admission to the Department of Literature, Science, and the Arts.

This privilege is open only to students who during their first three years have maintained a uniform record of good scholarship. The work is done under the direction of a Committee of five members representing the Department of Literature, Science, and the Arts, and the Department of Medicine and Surgery. With the consent of the Committee in charge, a candidate for the degree of Bachelor of Arts, who has been a student in the Department of Literature, Science, and the Arts for at least one year, and has 90 or more hours to his credit, of which at least 30 hours have been earned in the Department of Literature, Science, and the Arts of this University, may enroll upon the combined course; that is, while continuing his registration in this Department he may also register in the Department of Medicine and Surgery, provided the work he has already completed includes a sufficient number of the courses enumerated below to enable him to complete within one year the specific requirement described in the following paragraphs.

All students who desire to enter upon the Combined Literary and Medical Course must, in May of the year preceding double registration, file with the Registrar, upon a blank to be obtained from him, a petition to be granted that privilege.

When the student so registered in the two Departments has completed the first year of the Course of Medicine, and not less than 90 hours in the Department of Literature, Science, and the Arts, he will be recommended for the degree of Bachelor of Arts, provided his work has included the following courses:

Rhetoric, 6 hours, including Courses 1 and 2.
French and German, 16 hours of either one, and 8 hours of the other.
English, 6 hours.
Psychology, 6 hours.
Physics, 10 hours, including two hours of laboratory work.
Chemistry, general and organic, 8 hours for students presenting Chemistry for entrance, otherwise 12 hours.
Physical Chemistry, 4 hours.
Biology, 8 hours.
Zoology, 6 hours.
Total, 78 or 82 hours.

Suggested electives: Latin or Elementary Greek, 8 hours; History, or Political Economy, or Philosophy, 8 hours; Qualitative Analysis, 4 hours; Organic Chemistry, 5 hours.

Students enrolling prior to September, 1913, who so desire, may obtain the degrees of Bachelor of Science and Doctor of Medicine in six years by complying with the requirements above set forth, except that the credit required from the Department of Literature, Science, and the Arts shall be 60 hours, instead of 90, and shall include the following courses:

Rhetoric, 6 hours, including Courses 1 and 2.
French or German, 16 hours.
Physics, 8 hours.
Chemistry, general and organic, 8 hours for students presenting Chemistry for entrance, otherwise 12 hours.
Biology, 8 hours.
Total, 46 or 50 hours.

Electives are suggested from the courses before mentioned.

In order to meet exceptional cases, the Committee shall have power to adjust the foregoing requirements by allowing substantial equivalents.

COMBINED LITERARY AND LAW COURSE

Students desiring to obtain the degrees of Bachelor of Arts in the Department of Literature, Science, and the Arts, and of Bachelor of Laws, in the Department of Law, may, by enrolling on the Combined Literary and Law Course, shorten from seven years to six the time required to earn the two degrees. This privilege is open only to students, who during their first three years, have maintained a uniform record of good scholarship. The work is under the direction of a joint committee of five members, representing the Department of Literature, Science, and the Arts, and the Department of Law. With the consent of the committee in charge a candidate for the degree of Bachelor of Arts, who has been a student in the Department of Literature, Science, and the Arts for at least one year, and has 90 or more hours to his credit, of which at least 30 hours have been earned in the Department of Literature, Science, and the Arts of this University, may enroll on the Combined Course; that is, while continuing his registration in this department he may also register in the Department of Law, provided the work he has already completed includes a sufficient number of the courses enumerated below to enable him to complete within one year the specific requirement described in the following paragraphs.

All students who desire to enter upon the Combined Literary and Law Course must, in May of the year preceding double registration, file with the Registrar, on a blank to be obtained from him, a petition to be granted that privilege.

When the student so registered in the two departments has completed the first year of the Law Course and not less than ninety-six hours in the Department of Literature, Science, and the Arts, he will be recommended for the degree of Bachelor of Arts, provided his work has included the following courses:

Rhetoric, 12 hours, including Courses 1, 2, 3, and 4.
Mathematics, or a science including laboratory work, 8 hours.
Latin, or French, or German, or Spanish, 8 hours.
English History, *1a* and *2a,* or 3 and 4.
English Literature, 6 hours.
Total, 42 hours.

Latin is strongly urged as desirable for every student preparing to study Law. In order to meet exceptional cases the committee shall have authority to adjust the foregoing requirements by allowing substantial equivalents.

In addition to the required courses the student is advised to elect at least forty hours from the following subjects:

Latin, 8 hours, Courses 3 and 4; French, German or Spanish, 16 hours; History, 14 hours, including Courses 14 and 15; International Law, 4 hours; Economics, 16 hours, including Courses 1, 6, 9, 9*a*, 15 and 38; Philosophy, 7 hours, including Logic or Psychology, and Political Philosophy or Ethics; Mathematics, 2 hours, Course 51; Government, 6 hours; Oratory, 4 hours.

TWO YEAR COURSE

PRELIMINARY TO THE STUDY OF LAW

The following course in the Department of Literature, Science, and the Arts is suggested by the Faculty of the Department of Law for students looking to the study of law, who are unable to devote more than two years to collegiate preparation.

FIRST YEAR

Rhetoric, Courses 1, 2.	History, Courses 1*a*, 2*a*.
Latin, Courses 1, 2.	Mathematics, Courses 1, 2.

SECOND YEAR

Rhetoric, Courses 3, 4.	History, Courses 14, 15.
Latin, Courses 3, 4.	Economics, Courses 1, 2.
English Literature, 6 hours.	Philosophy, Course 9 (Logic).

All students in the Department of Literature, Science, and the Arts, who contemplate taking the law course, are urged to select as nearly as possible the courses outlined above. The substitution of a modern language for Latin may be made in the case of students whose preliminary work has not included the necessary preparation, though students of law are strongly urged to include Latin in their course.

COURSES IN BUSINESS ADMINISTRATION

The Courses in Business Administration are organized as special programs of study in the Department of Literature, Science, and the Arts. Their aim is to give semi-professional training in the organization and processes of modern industry and to assist the student in the selection of such other lines of study, offered in the department, as will give general culture to supplement this training.

Four year programs of study, leading to the bachelor's degree, are now offered in General Business, Banking, Insurance, Accounting, Railway Administration, and Mine Administration. The required work in these varies from 70 to 80 hours and includes various courses in Political Economy, Industrial Technique, Industrial and Social History, Money, Banking and Finance, Commerce and Transportation, Accounting and Business Organization, Insurance and Statistics, Law and Administration, and Applied Science.

Whichever program is chosen, the student must elect Rhetoric 1 and 2 and Mathematics 1 and 2 and a total of 24 hours of modern language. Departures from the printed programs may be made at any time by consent of the Committee.

The privilege of making elections in the Law Department is granted to students enrolled in these courses who have 60 hours of credit and no conditions standing against them.

Enrollment should take place at the beginning of the first year and not later than the beginning of the third year of residence. Only candidates for a degree may be enrolled.

Students completing any of the programs laid down will receive, in addition to the University diploma, a special certificate signed by the President of the University.

A special announcement of the Courses in Business Administration may be obtained by addressing Secretary Shirley W. Smith, The University. Correspondence concerning the courses may be directed to Professor Edw. D. Jones, 625 Oxford Road. Inquiries concerning requirements for entering the University, or credit for advanced work, should be addressed to Dean John O. Reed, The University.

COURSE IN FORESTRY

The course in forestry is organized as a special program of study in the Department of Literature, Science, and the Arts, and leads to a special degree (Master of Science in Forestry). It requires either five or six years of college work, as explained below:

There are two main classes of forestry students:

(A). Those who enter this University as undergraduates with the purpose of studying forestry. Such students are expected to take the degree of Bachelor of Arts at the end of their fourth year, and the degree of Master of Science in Forestry at the end of the fifth year.

(B). Those who begin the study of forestry as graduate students (except candidates for the doctorate). Such students require two years to complete the course in forestry, and receive the degree of Master of Science in Forestry.

In addition to the above, there are two other classes of forestry students:

(C). Candidates for the doctorate (Doctor of Philosophy or Doctor of Science) may elect one or both minors in forestry.

(D). Under very exceptional circumstances, special students will be admitted to the work in forestry.

No one (with very rare exceptions in the case of undergraduate special students) will be allowed to complete all the courses in forestry as an undergraduate. At least the last year of work must be taken as a graduate student.

A special bulletin describing the course in forestry, and containing the required program and other details, may be obtained by addressing the Secretary of the University. General correspondence concerning the course may be directed to the Professor of Forestry, The University, Ann Arbor. Inquiries concerning entrance requirements or credit for advanced work should be addressed to Dean John O. Reed, The University.

COURSE IN LANDSCAPE DESIGN

The course in landscape design is organized as a special program of study in the Department of Literature, Science, and the Arts, and leads to a special degree (Master in Landscape Design). It requires a minimum of five years' college work.

The object of the course is primarily to train professional landscape designers, and hence it includes lines of study which are essential to a liberal college education in addition to the technical studies. One course in the Department of Landscape Design is open to all students in the University.

No one will be allowed to complete all the courses in landscape design as an undergraduate. At least the last year of work must be taken as a graduate student.

The privilege of making certain electives in the Department of Law and the Department of Engineering is granted to students enrolled in this course.

A special bulletin on the Course in Landscape Design, containing the required program and other information, may be obtained by addressing the Secretary of the University. Correspondence concerning the course may be addressed to Mr. Aubrey Tealdi, 1430 Israel Avenue, Ann Arbor. Inquiries concerning the requirements for entering the University, or for credit for advanced work, should be addressed to Dean John O. Reed, The University.

COURSES IN JOURNALISM

In order to provide training for Journalism, programs of study have been arranged to meet the needs of two classes of students: (A) those who wish to pursue a general course; (B) those who wish to prepare themselves for a particular kind of writing, or a special department of the newspaper. In order to give the candidate an opportunity for practical newspaper experience a limited amount of credit will be granted for work on the student or University publications, provided that such work is elected as regular courses in the department of Rhetoric and is done under the immediate direction of a member of that department.

The administration of the course in Journalism is entrusted to a standing committee of the Faculty, which has the further power to modify the requirements somewhat to meet the aims and special needs of individuals. Upon graduation a special certificate will be given to students who, in covering the requirements for the Bachelor's degree, shall have completed a program of studies approved by this committee.

A special bulletin describing the course may be obtained by addressing the Secretary of the University. Further information concerning the work may be gained by communicating with Professor Fred N. Scott, 1351 Washtenaw Avenue, Ann Arbor. Inquiries concerning entrance requirements or admission on advanced standing should be addressed to Dean John O. Reed, The University.

TEACHER'S DIPLOMA AND TEACHER'S CERTIFICATE

The aims of the University in providing instruction in the Science and the Art of Teaching are as follows:

1. To fit the University students for the higher positions in the public school service.
2. To promote the study of educational science.
3. To teach the history of education, and of educational systems and doctrines.
4. To secure to teaching the rights, prerogatives, and advantages of a profession.
5. To give a more perfect unity to our State educational system by bringing the secondary schools into closer relations with the University.

TEACHER'S DIPLOMA

The Teacher's Diploma is given to a student in connection with his bachelor's degree, provided he has taken eleven hours, including Courses 1, 2, and 4, in Education.

The Diploma is also given to a graduate student at the time of receiving a master's or a doctor's degree, provided he has pursued teaching as a major or a minor study, or has otherwise satisfactorily completed an equivalent amount of pedagogical work.

TEACHER'S CERTIFICATE

By authority of an act of the State Legislature, passed in 1891 and amended in 1903, the Board of Regents, acting upon the recommendation of the Faculty of this Department, gives a Teacher's Certificate to any person who takes a bachelor's, master's, or doctor's degree, and also receives a Teacher's Diploma as provided above. By the terms of the act, the certificate given by the Regents "shall serve as a legal certificate of qualification to teach in any of the schools of this State, when a copy thereof shall have been filed or recorded in the office of the legal examining officer or officers of the county, township, city, or district."

DIPLOMA OF MERIT

A Diploma of Merit will be granted to a limited number of graduating students who, in the judgment of their instructors, have shown exceptional proficiency in their studies and possess marked qualifications for success in teaching. No specific requirements will be made for this diploma, nor will applications for it be considered.

This diploma must not be confused with the Teacher's Diploma described in the preceding sections. Particular attention is drawn to the fact that it does not entitle the holder to the Teacher's Certificate.

TEACHER'S APPOINTMENT COMMITTEE

An appointment committee of the Faculty of the Department of Literature, Science, and the Arts, composed of representatives of the various departments of instruction, has been constituted for the purpose of assisting men and women who are studying, or have studied, under this Faculty, to secure positions as teachers. This service is performed gratuitously, in the interest of students of the University, past or present, and of superintendents of schools and boards of education wishing to employ teachers. Persons desiring to reach this committee should address their communications to the Secretary of the Appointment Committee, The University.

FEES AND EXPENSES

Every student, before entering any Department of the University, is required to pay a matriculation fee, which for a citizen of Michigan is ten dollars, and for a person who comes from any other State or country twenty-five dollars, is paid but once, and entitles the student to the privileges of permanent membership in the University. In addition to the matriculation fee, every student has to pay an annual fee for incidental expenses. This fee is paid the first year of residence at the University and every year of residence thereafter. The annual fee in the Department of Literature, Science, and the Arts is, for Michigan students, thirty dollars; for all other students, forty dollars. A fee of ten dollars is charged for graduation. No student is recommended for a degree until he has paid all fees, including the fee for graduation. A fee of two dollars is charged for the Teacher's Diploma.

Students who pursue laboratory courses are required to pay for the materials and apparatus actually consumed by them. The deposits required in advance range from one to twenty dollars. In the chemical laboratory the average expense for each course is about one dollar and twenty cents a week. For the rental of a locker in the Gymnasium a fee of two dollars is charged.

There are no dormitories and no commons connected with the University. Students obtain board and lodging in private families for from three dollars and a half to six dollars a week. Clubs are formed in which the cost of board is from two dollars to three dollars and a half a week. Room rent varies from seventy-five cents to two dollars and a half a week for each student. The annual expenses of students, including clothing and incidentals, are, on the average, about three hundred and seventy dollars. There are always among the students a number who defray their expenses, at least in part, by their own efforts. The University does not, however, undertake to obtain employment for students.

All young women planning to enter the University should, before coming to Ann Arbor or engaging rooms, communicate with Mrs. Myra B. Jordan, Dean of Women. (See page 64.)

Graduate School

A special Announcement giving additional information in regard to the Graduate School is issued annually in March. Copies of this Announcement can be had by addressing Shirley W. Smith, Secretary of the University. Inquiries about admission and courses of study which are not answered in the Announcement, should be addressed to Professor Edward H. Kraus, Secretary of the Administrative Council of the Graduate School.

The Graduate School is organized within the Department of Literature, Science, and the Arts. Its management is intrusted to an Administrative Council, consisting of thirteen members of the Faculty of the Literary Department, who are appointed by the President of the University. The purpose of the school is to bring into greater prominence the numerous advanced courses of instruction which have been developed from the continual extension of the elective system; to secure a more efficient and systematic administration of this higher work; and to provide as far as possible for the separate instruction of graduate students.

ADDMISSION AND REGISTRATION

The privileges of the Graduate School are open to graduates of the Department of Literature, Science, and the Arts of this University, and to graduates of other universities and colleges who satisfy the Administrative Council that they are qualified to pursue with profit the advanced courses of study offered in the School. But admission to study in the School does not necessarily imply admission to candidacy for a degree. The requirements made of candidates for higher degrees may be found on page 217.

Graduates of other institutions whose course of study is not substantially equivalent to that prescribed at this University are required to do an additional amount of undergraduate work before being admitted to formal candidacy for an advanced degree.

For information in regard to enrollment for graduate study in the Summer Session, see page 223.

All applicants for admission to the Graduate School must first present themselves with their credentials to the Secretary of the

Administrative Council. In case the Secretary regards their application with favor, they will receive special blanks to be filled out subject to the approval of the instructors under whom they wish to work; and to be returned to the Secretary before the end of the first week of the semester. All applications for admission to the Graduate School are subject finally to the action of the Administrative Council.

All students of the Graduate School, *whether enrolled in a previous year or not,* are required to register with the Secretary of the Administrative Council at the beginning of each year of residence. *Such registration must be made at the beginning of the year to insure recognition of meeting the residence requirement.*

Blanks showing the courses of study the student is pursuing must be filed at the beginning of *each semester or summer session* with the Secretary of the Graduate School.

Students who finish the undergraduate course of this University at the end of the first semester and who continue their residence for the remainder of the year are permitted to register in the School and thus secure the privileges of its membership, even though the bachelor's degree is not conferred until the close of the year.

Undergraduates of this University, who at the beginning of a given semester are within three hours, or at the beginning of a Summer Session within two hours, of graduation, may be permitted to count that semester or Summer Session toward the residence requirement for the degree of Master of Arts. Even though such students are not formally registered in the Graduate School until they have received the bachelor's degree they are required to file with the Secretary of the Graduate School a blank indicating the courses they desire to pursue and have applied toward the advanced degree.

Applicants who do not wish to become candidates for a degree may be admitted and registered as special graduate students. Such graduate students must designate, and have approved, the general lines of study which they wish to pursue.

DEGREES

ADMISSION TO CANDIDACY

Admission to candidacy for a higher degree is granted only to Bachelors of this University or of other universities or colleges of similar standing, or to students whose preparation for graduate study is beyond all question fully equivalent to that represented by the undergraduate course of this University. Recognition of candidacy requires the approval of the Administrative Council.

Graduate study for a degree will naturally be along lines in which the candidate has had special preparation.

Except as stated below (page 220), one year of residence study is required of all candidates for a degree. Registration should be made and subjects of study announced as early as possible, and *this must be done immediately* at the opening of the academic year in order to ensure meeting the residence requirement.

UNIVERSITY SYSTEM

Every graduate student who is a candidate for a higher degree works upon the so-called "university system," the essential features of which are specialization of study, a final examination, and a thesis. The student selects a "major study" and, in general, two "minor studies," his selection being subject, however, to the approval of the Council. When the choice has been made and approved, the student's work is henceforth under the immediate supervision of a committee consisting of those professors who have charge of the studies chosen, the one having charge of the major study being chairman. This committee arranges a course of study suited to the desires, needs, and previous attainments of the student, assists him in the choice of a subject for a thesis, passes judgment upon his thesis when it is written, conducts his examination, and, if he passes, reports him to the Council as worthy of the degree sought. The nature of the work prescribed, and of the committee's supervision, varies more or less according to the subject chosen, the degree sought, and the previous attainments of the student. The work may consist of attendance upon certain specified courses of study, of reading to be done privately and reported upon, or of original research to be carried on more or less independently. The requirement of a thesis is usually waived in the case of a candidate for a master's degree.

Applicants for an advanced degree are required to announce to the Council, through the Secretary, *within one week after the opening of each semester or summer session,* the particular branches of study to which they wish to give special attention. The supervision of their work will then be entrusted to the proper committee.

DEGREES CONFERRED

The degrees conferred on the completion of approved courses of study in the Graduate School are Master of Arts, Master of Science, Master of Science in Forestry, Master in Landscape Design, Doctor of Philosophy, and Doctor of Science.

THE MASTERS' DEGREES—A.M., M.S.

A candidate who has been admitted to study for the master's degree may be recommended for the degree after one year of resident study at this University, provided he passes a satisfactory examination on the subjects of study approved by the Administrative Council. A thesis may or may not be included in the requirements for the degree as the committee in charge of the student's work may determine.

The work done in residence is mainly in pursuing courses of study regularly announced, but private work is often undertaken under special direction.

The degree of Master of Arts is the one usually conferred, though candidates who pursue studies along scientific lines may, at their option, receive the degree of Master of Science.

Candidates for the master's degree may pursue their work under either of the following regulations:

A

1. Candidates shall choose a major study, and two minor studies, to each of which approximately one-half of the work necessary for the major shall be devoted. The major and one minor may fall within the same department; but, unless otherwise determined by the Administrative Council of the Graduate School, the second minor shall be chosen in another department.
2. Every candidate shall submit his choice of studies to the Administrative Council of the Graduate School for approval. This Council shall constitute a court of appeal for any candidate whenever the wisdom of his choice is called in question.
3. At the conclusion of the first semester of study the candidate shall be required to pass an examination (written or oral or both), or to present an essay or piece of research (so far as completed), as the professor in charge of the course may determine.
4. At the close of the course, the committee in charge of the candidate's work shall conduct a final examination, which may be written or oral or both. Ordinarily the results filed at the close of the first semester shall be presented to this committee at the time of the final examination.

It is the intention that candidates pursuing their work on the foregoing plan shall specialize in some field of scholarship or research.

B

1. Candidates shall choose from courses published in the Annual Announcement of the Graduate School not more than thirteen hours of work in each semester. These hours may be distributed over as many as three departments, in one of which study shall be pursued throughout the entire course.
2. With the permission of the Administrative Council of the Graduate School, a candidate may choose in addition to the thirteen hours of graduate work not more than four hours of undergraduate work in each semester.
3. Every candidate shall submit his choice of studies to the Administrative Council of the Graduate School for approval.
4. The work of candidates shall be under the charge of a committee consisting of the heads of departments in which work is taken.
5. At the end of each semester the candidate shall be required to pass a special examination (oral or written or both) in each branch of study, as the professor in charge of the course may determine.

6. At the conclusion of the course, the committee in charge of the candidate's work shall designate not less than three examiners, who shall conduct a final examination, in such manner as they may see fit, on all graduate work taken by the candidate. This committee shall be empowered to suspend the operation of Rule 5 for the semester in which the final examination is held, and it shall take into account the results of the first semester examinations.

It is intended that candidates pursuing their course on the foregoing plan shall be at liberty to supplement their baccalaureate work rather than be required to specialize along a single definite line. It is not the primary intention that this year of master's work shall count toward a doctorate, unless the committee of heads of departments in charge of the candidate's work recommend decidedly to that effect.

The practice of allowing students to enter upon studies *in absentia* as candidates for a master's degree has been discontinued. But a graduate of this University who has already completed a considerable portion of the term of residence prescribed for a master's degree may be allowed to continue his studies for the degree, without further residence at the University, on such conditions as the Administrative Council may determine in each case. *This privilege is restricted to graduates of this University.* Candidates for the master's degree who find it necessary thus to complete a portion of their work *in absentia* are required to petition the Administrative Council through the Secretary for such privilege, and if their petition is granted, they must keep the Secretary constantly informed of their continued connection with the School and of the progress of their work.

MASTER OF SCIENCE IN FORESTRY

The work of candidates for the degree of Master of Science in Forestry is under the immediate supervision of the professor of Forestry and consists mainly of prescribed courses. The department of Forestry publishes annually a special Bulletin which contains full information concerning the work leading to this advanced degree.

Candidates for the degree of Master of Science in Forestry may be conveniently divided into three classes:—

1. Graduates of this University who have received either the degree of Bachelor of Arts or Bachelor of Science and have completed the courses prescribed for the first four years by the department of Forestry. Such students are usually permitted to complete the requirements for the Master's degree in one year.

2. Graduates of this University and of other institutions of recognized standing, who have successfully pursued courses in general science approximately equivalent to those prescribed for the first four years, are required to spend two years in residence in order to obtain the Master's degree.

3. Graduates of this University and of other colleges and universities of approved standing, whose preparation is deficient in some of the important required courses, notably in botany and in other natural history subjects, are required to spend a longer period in order to satisfy the requirements for the degree of Master of Science in Forestry. This period will depend upon the preparation and ability of the student.

Candidates for the degree of Master of Science in Forestry are required to elect the major subject and one minor study in the department of Forestry, and the second minor in the department of Botany.

MASTER IN LANDSCAPE DESIGN—M.L.D.

Graduates of this University with the degree of Bachelor in Landscape Design will receive the degree of Master in Landscape Design upon the successful completion of the requirements for the same. The graduate work in Landscape Design consists largely of prescribed courses and may, in general, be completed in one year. A special Bulletin giving full description of courses in Landscape Design may be had upon application to the Secretary of the University.

THE DOCTORS' DEGREES—Ph.D., Sc.D.

The doctor's degrees are open to all persons who have received a bachelor's degree, but no student will be enrolled as a candidate for a doctor's degree until he has been in residence as a graduate student for at least one year. This rule may be waived in the case of those who come properly accredited from a graduate school of some other university, and of those who, as undergraduates in this University, have shown special proficiency in the line of their proposed graduate work.

It is not intended that the doctor's degree shall be won merely by faithful and industrious work for a prescribed time in some assigned course of study. The candidate must also evince ability to carry on independent research. No definite term of required residence can, therefore, be specified. As a rule, three years of graduate study are necessary, the last two semesters of which must be spent at this University. This last requirement may be waived, however, in the case of bachelors of this University who have spent one year in residence pursuing courses leading to an advanced degree. The period of three years may occasionally be shortened in the case of students who, as undergraduates, have pursued special studies in the direction of their proposed graduate work. Candidates who already hold the master's degree usually find it possible to prepare for the doctor's examination after two years of further study along the same lines of work pursued for the master's degree.

A student wishing to become an applicant for a doctor's degree must make a formal application to be so enrolled at least two semesters prior to the time of presenting himself for examination.

No student will be accepted as a candidate for a doctor's degree who has not a knowledge of French and German sufficient for purposes of research.

A candidate for a doctor's degree must choose a major study that is substantially co-extensive with some one department of instruction in the University. He must also choose two minor studies, one of which may be in the same department as the major, but which involves a more thorough treatment of the same. Both minors must be cognate to the major, and all studies must be subject to the approval of the Administrative Council. A portion of the work for a doctor's degree consists in pursuing regularly announced courses of instruction, but in general a large amount of time is devoted to individual study and research under the immediate supervision of the committee in charge. This is especially true in the preparation of the thesis.

The degree of Doctor of Philosophy is the one usually conferred, though candidates who pursue studies along scientific lines may at their option receive the degree of Doctor of Science.

THE THESIS.—The thesis is of great importance. It must exhibit creditable literary workmanship, and a good command of the resources of expression, but its acceptance depends more upon its subject-matter than upon its formal or rhetorical qualities. It must be an original contribution to scholarship or to scientific knowledge. The inquiry should be confined within narrow bounds. The treatment should be as concise as the nature of the subject permits, and show familiarity with the history of the problem treated, with the literature bearing upon it, and with the latest methods of research applicable to it. Every thesis should contain a clear introductory statement of what it is proposed to establish or investigate, and likewise a final résumé of results. It must be preceded by an analytical table of contents, with page references, and a full list of the authorities made use of. The larger divisions and the more important minor divisions should be indicated by suitable headings. It is expected that the preparation of an acceptable thesis will usually require the greater part of an academic year.

The subject of the thesis for a doctor's degree must be chosen, and must be approved by the committee concerned, as early as the first of November of the college year in which the applicant expects to take his degree, and the subject of the thesis for a master's degree, when required, must be chosen and approved as early as the first of December.

The thesis must be completed and a good, legible copy must be put into the hands of the chairman of the proper committee as early as the first of May of the year in which the applicant expects to take the degree.

Every candidate for the degree of Doctor of Philosophy or Doctor of Science, in case of the acceptance of his thesis, is required to have the thesis printed in full or in part, as may be approved by the responsible committee. He is also required to deposit one hundred and fifty copies of the printed thesis in the University library, these copies to be used for exchange with other universities. Provision has been made, however, that in cases where this requirement would work hardship, it may be waived on recommendation of the candidate's committee. To guarantee the printing of the thesis, every candidate for the doctor's degree is required to deposit with the Treasurer of the University, between the date of the acceptance of the thesis and the time fixed for his examination, the sum of fifty dollars. This deposit will be returned to him in case of failure to pass his examination, or whenever he shall cause his thesis to be printed at his own expense, or shall have it published in a form and under auspices approved by the responsible committee. In case the thesis is not immediately printed, a typewritten copy must be placed in the University library. In the printing of the thesis at his own expense the candidate will be expected to use good, substantial paper, and sightly typography.

EXAMINATIONS

The final examinations of candidates for the higher degrees are commonly held during the first part of June; but the examinations can usually be arranged at any time when a candidate has fulfilled all the technical requirements and has satisfied his instructor that his work has been such as to warrant an examination.

Ordinarily the examinations are oral, and in each case they are held before those comprising the special committee in charge of the candidate's work and before such others as may be present by invitation of this committee. They may be preceded by such written tests as individual instructors consider necessary.

Candidates in attendance upon regular courses in which stated examinations are held, whether during the semester or at its end, are expected to take these examinations with the classes concerned unless definitely excused from so doing.

On the examinations of candidates for the master's degrees see page 218.

SUMMER SESSION

Graduate students, who are regularly matriculated in the University, may carry on work during the Summer Session which will count toward an advanced degree. Graduates of other universities or colleges of similar standing, who are competent to enroll for a higher degree, may, upon the payment of a fee of twenty-five dollars, matriculate in the University and begin graduate study during the Summer Session. This fee of twenty-five dollars includes the regular matriculation fee and the fee for the current Summer Session.

Candidates for the master's degree, if graduates of the University of Michigan, may present themselves for examination after attendance upon three Summer Sessions of this University, supplemented by satisfactory work done *in absentia* under the direction of the proper committee.

Graduates of other institutions, who have been admitted to candidacy for the master's degree, may present themselves for examination after attendance upon two Summer Sessions and one semester's residence in the University, or after attendance upon four Summer Sessions, supplemented by satisfactory work done *in absentia* under the direction of the proper committee.

Full information concerning graduate courses in the Summer Session may be found in the Announcement of the Summer Session. This Announcement may be obtained from the Secretary of the Graduate School.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty dollars;* for all others, *forty dollars.* The annual fee required for all graduates who are granted the privilege of pursuing studies for a master's degree *in absentia* is *ten dollars.*

Summer Session Fee.—For matriculates, *twenty dollars;* for non-matriculates, *twenty-five dollars.* See Summer Session above.

Graduation Fee.—For all alike, *ten dollars.* A fee of *two dollars* is charged for the Teacher's Diploma.

For laboratory fees and other expenses, see pages 71 to 73.

Department of Engineering

A special Announcement giving further information in regard to this department is published annually. For copies of this Announcement or for other information relating to the department, address Professor Mortimer E. Cooley, Dean of the Department of Engineering, Ann Arbor, Mich.

In the legislative act under which the University was organized in 1837, provision was made for instruction in engineering. Work was begun in this line in 1853, and the first degrees were conferred in 1860. The engineering courses were included in the curriculum of the Department of Literature, Science, and the Arts, until the close of the collegiate year, 1894-1895. At that time the Department of Engineering was established by the Board of Regents as a separate department of the University.

The Department of Engineering now offers two groups of four-year courses. One of these is identical with the four year course as previously offered. The degree to be conferred upon completon of this course has, however, been changed to Bachelor of Civil, Mechanical, Electrical, Chemical, Marine, or Architectural Engineering, or of Architecture. Students who are strong in mathematics and physics can and usually do finish this course in four years.

The other group leads to the degree of Bachelor of Science in Engineering, or in Architecture. This course, which provides a more general training, but less instruction in purely technical subjects, is arranged with a view to meeting the requirements of students who plan to take an engineering course as a preparation for a business career, and who do not therefore wish to meet the specific requirements laid down for those expecting to become designers of new construction.

This group is further arranged to provide for the very large number of young men who enter the engineering schools without a clear idea of the nature of the work, and oftentimes lacking both the preparation and the natural gifts to insure success.

One or two additional years are planned for those students who desire a broader foundation in cultural studies and a more thorough preparation in technical branches than is afforded in either of the four-year courses. At the end of the fifth year the degree of Master of Science in Engineering, or in Architecture is offered; at the end of the sixth year the degree of Master of Civil, Mechanical, Electrical, Chemical, Marine, Geological, or Conservation Engineering, or of Architecture.

The Regents of the University on November 4, 1909, in recognition of the widely spreading demand for the conservation of all forms of the country's natural resources, upon the recommendation of the Faculty, established in the Department of Engineering a course of study leading at the end of six years to the degree of Master of Conservation Engineering, and corresponding to the courses already offered for the degree of Master of Civil, Mechanical, Electrical, Chemical, Marine, and Geological Engineering, and of Architecture.

The work for advanced degrees is outlined on page 278.

The academic year extends from the Tuesday preceding the first Thursday in October to the last Thursday in June (October 4, 1910, to June 29, 1911). Between the first and second year of residence for students in Architecture, between the second and third year for all others except those in Civil Engineering, and between the third and fourth year for Civil Engineering students, attendance at a summer session of eight weeks, beginning the Tuesday after Commencement (July 5 to August 26, 1910), is also required.

REQUIREMENTS FOR ADMISSION

Applicants for admission must be at least sixteen years of age, and must present satisfactory evidence of good moral character. They must bring credentials from their last instructor, or from the school last attended, or from their last employer.

Applicants may be admitted on diploma; by examination; on credits from another college; or by a combination of these. They are also admitted to advanced standing; as special students; and as graduate students.

ADMISSION ON DIPLOMA

Students presenting graduation certificates from any of the schools officially approved by the Faculty of the Department of Literature, Science, and the Arts, signed by the superintendent or the principal of the school, are admitted without examination to the Department of Engineering. But if such certificate, though it might admit a student to the Department of Literature, Science, and the Arts, shows any deficiencies in the requirements for admission to the Department of Engineering, such deficiencies must be made up, or substitutions secured at the time of entrance. Extra studies may be credited on advanced standing, if the subjects are taught in either of the two departments.

The certificate must state that the student has sustained his examinations in all the studies prescribed for admission to the Department of Engineering, or has satisfied the requirements for admission to the Department of Literature, Science, and the Arts (see pages 74 to 82), and is recommended for admission to the University. It must be presented to the Assistant Dean of the department within a year and three months after graduation from the school, and the student must then begin his work.

The approved schools of the University of Michigan do not necessarily include those accredited to or affiliated with other Universities or Colleges.

Diplomas and seventy-two-count academic certificates issued by the Regents of the University of the State of New York are accepted by the Department of Engineering in place of examinations in all the subjects required for entrance which are covered by such credentials, provided that not more than fifteen months have elapsed since graduation. A statement from the teacher, giving in detail the work done and the proficiency attained in these subjects, must be submitted by the holder of the credentials.

No other credentials, such as pass-cards and other certificates issued by the Regents, are accepted, unless they are presented by the holder of a Regents' diploma or a seventy-two-count academic certificate.

Students, who for any reason have failed to secure certificate of graduation from an approved school and principal's recommendation, will be required to pass the regular examinations for entrance in all subjects.

Those desiring to enter on diploma should present their credentials at the office of the Assistant Dean, Room 255, New Engineering Building, not later than September 28 or 29, if desiring to enter the first semester, or February 9, if desiring to enter the second semester. It is better to mail the credentials, as long before these dates as practicable, to the Assistant Dean. They will be examined, placed on file, and a receipt for them mailed to the sender. If admitted, the applicant will be informed. Certificates and diploma from schools other than those officially approved by the University do not excuse an applicant from the admission examinations.

Students who have satisfied the requirements for admission to the Department of Literature, Science, and the Arts (see pages 74 to 82) are admitted upon completing the requirements in plane trigonometry and in the sciences, if deficiencies in these subjects exist.

All entrance deficiencies except those in Trigonometry, Chemistry, and Modern Languages, must be made up in the Ann Arbor High School, and a student will be classified with that in view at the time of his entrance.

ADMISSION BY EXAMINATION

Fifteen units are required for admission. The term *unit* means the equivalent of five recitations a week for one year in one branch of study. Eleven and one-half units are prescribed. The other three and one-half units may be selected from those mentioned in the list designated below as Allowed. Only the number of units mentioned in connection with each subject will be accepted. In general, applicants will not be admitted with conditions in more than two units.

PRESCRIBED

English, 3 units. Grammar. Composition. Classics. History of English Literature.

Mathematics, 3½ units. Algebra, through quadratics. Geometry, Plane, Solid, Spherical. Trigonometry, Plane.

Physics, 1 unit.
Chemistry, 1 unit.
History, 1 unit.
Latin.
French. } One of these, 2 units.
German.

ALLOWED

English, additional, 1 unit.
Greek, 2 units.
Latin 2, 3, or 4 units.
French, 2, 3, or 4 units.
German, 2, 3, or 4 units.
History, additional, 1, or 2 units.
Physiography, ½, or 1 unit.
Botany, 1 unit.
Zoology, 1 unit.
Biology, 1 unit.
Drawing, ½ unit.
Manual Training, ½ unit.

Under English is included Grammar, Composition, reading of English Classics, and History of English Literature. The History of English Literature may form part of the work of either the third or fourth year. Four units in English should always be presented whenever it is possible to do so.

Biology is defined as one-half year of Botany and one-half year of Zoology, hence it cannot be accepted from an applicant who offers at the same time either, or both, of those subjects.

Full preparation in Plane Trigonometry and Chemistry should be presented. The Summer Session of the University of Michigan affords facilities for doing this work between July 5 and August 26, 1910.

The half unit allowed in Drawing and the half unit allowed in Manual Training must cover at least 200 periods of work in an approved school.

The following is suggested as a desirable selection for the three and one-half units that are elective.

English or Latin, 1 unit.
History, 2 units.
Physiography, or Drawing, ½ unit.

SCOPE OF THE PREPARATORY WORK

In English Language, English Literature, French, German, Greek, Latin, Algebra, Geometry, Trigonometry, Physics, Chemistry, History, Physiography, Botany, Zoology, and Biology the amount and character of the work which will be accepted is identical with that described for the Department of Literature, Science, and the Arts on pages 75 to 82.

Drawing.—One-half unit. Allowed. This work should cover:

(*a*) Exercises giving evidence of skill in the use of instruments and knowledge of materials used. These should consist mainly of the accurate geometrical construction of the more important plane curves, with simple problems involving tangents and normals to the same.

(*b*) Graded exercises in the orthographic projection of simple geometrical forms and working drawings of some of the more elementary construction in wood and metal, all fully dimensioned, and in which the conventional signs are properly used.

(*c*) Exercises in line shading, shade lining, and cross hatching, together with a reasonable skill in lettering.

Manual Training in Shop Work.—One-half unit. Allowed. If offered in wood work, it should cover a series of graded exercises in framing joints, dovetailing, and simple work in joinery, and cabinet making. This should be supplemented by a series of exercises in wood turning.

If offered in metal work, it should cover a series of graded exercises at the anvil and forge, including drawing down, upsetting, swaging, fullering and welding. This may be supplemented with exercises in tool dressing and tempering, and in manipulating metals with the chisel and file.

EXAMINATIONS FOR ADMISSION

Examinations for admission to all Departments are conducted by the Department of Literature, Science, and the Arts, in accordance with the schedule on pages 82 and 83. Applicants presenting themselves too late for the scheduled examinations are required to pay an examination fee of *five dollars*. While students may be admitted in February, entrance at the beginning of the college year is strongly advised.

CONDITIONAL ADMISSION

An applicant who fails in some part of the examination, may, at the discretion of the Faculty, be admitted conditionally; but any condition thus incurred must be removed at one of the next two regular examinations for admission, and no student who has an admission condition outstanding at the beginning of his second year of residence is allowed to enter his classes until such condition is removed.

ADMISSION ON CREDITS FROM ANOTHER COLLEGE

Applicants who have taken some portion of the studies required for admission in an approved school or college—not a high school—may present credit for such work in place of taking examinations in the same. The following documents must be presented:

a. An official copy of their credits showing the subjects studied in such school or college, the number of weeks devoted to each, the number of class periods per week, and the standing attained upon completing the same.

b. An official certificate of their regular entrance to such school or college.

c. An official certificate of honorable dismissal from such school or college.

Applicants should apply in person to the Assistant Dean, Room 255, New Engineering Building, September 27 or 28, or February 10 or 11, or their documents may be sent on in advance as much before these dates as practicable.

ADMISSION TO ADVANCED STANDING

Bachelors of Arts of this University, and graduates of other approved colleges, are admitted without examination to advanced standing as candidates for a degree in engineering.

They should present to the Assistant Dean an official certificate of the date of their graduation—not their diploma—and an official copy of the record of the studies they have completed, showing the subjects studied, the number of weeks devoted to each, and the number of class periods per week.

Such students are excused from a considerable portion of the general requirements for graduation (see page 273).* The remaining requirements can be completed in two years, if, as an undergraduate, the student has taken the Mathematics and Physics prescribed for engineering students (see pp. 273, ff) and Course 4 in Drawing (see page 260). A knowledge of differential and integral calculus, analytical mechanics, elementary drawing, and descriptive geometry is required for the advanced work.

The culture imparted by classical or other liberal training will be found to have its uses for one engaged in engineering work, and previous discipline of the faculties in exact research will enable the professional student to master more easily the requirements of the course. All the time the student can devote to general studies before taking up specialties will be well spent.

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*A student enrolled in the Department of Literature, Science, and the Arts, who desires to elect any of the work in the Department of Engineering not included in the Announcement of the former Department, must obtain written permission from the Dean of that Department, and have it approved by the Assistant Dean of the Department of Engineering.

Students who have completed at least one year's work in an approved college, and who bring explicit and official certificates describing their course of study and scholarship, and testifying to their good character, are admitted to advanced standing without examination, except such as may be necessary to determine what credit they are to receive for work done in the college from which they have come.

Such applicants should present a letter of honorable dismissal from college; an official copy of their college record; and an official record of their high school, or other work, preparatory for college, the same as those admitted on diploma.

Students who have not completed a year's college work in an approved college, but before entering this department of the University have pursued studies beyond those required for admission, may be admitted to advanced standing on passing the regular entrance examinations, and examinations in such undergraduate studies as they may ask to be credited with in advance.

Work in manual training and drawing, pursued in a high school, is recognized for advanced credit if considered by the instructors in the Department of Engineering equivalent to the work given in this department. Students desiring advanced standing in drawing must bring all drawings completed previous to entrance.

Advanced credits must be secured and the record returned to the Assistant Dean by the date named on the blank form issued by him for such record. An account once closed cannot be reopened without special permission. Application should be made to the Assistant Dean.

ADMISSION AS GRADUATE STUDENTS

Graduates from this Department, or others who satisfy the Faculty that they possess equivalent attainments, may be received as students for further degrees in engineering upon the condition mentioned in § 165 of the Annual Announcement.

Such persons should present to the Assistant Dean an official certificate of the date of their graduation—not their diploma—and an official copy of the record of their college work, showing the subjects pursued, the number of weeks devoted to each, and the number of class exercises per week.

ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE

The term Special Student is applied to a person pursuing work in this department who is not a candidate for a degree.

No one under twenty-one years of age will be admitted as a special student in this department.

Practicing engineers, teachers, and other persons of mature years and recognized ability, may be given the courtesy of pursuing work as special students in this department under the following conditions: They shall be recommended by the heads of departments of instruction in which they wish to study, and shall pay the usual fees of regular students.

The work of special students will be under the direction of a committee of the Faculty.

A special student may become a candidate for a degree by fulfilling the requirements for admission.

A student who is a candidate for a degree is not allowed to become a special student without permission of the Faculty previously obtained.

DIRECTIONS

Applicants for admission on examination should present their credentials to the Assistant Dean of the Department, at his office, Room 255, in the New Engineering Building, on Monday or Tuesday, September 26 or 27, between the hours of 9 and 5, and receive from him papers admitting to the examinations. The result of the examination may be learned at the Assistant Dean's office Monday, October 3.

Applicants for admission on diploma should present their recommendation blanks to the Assistant Dean not later than October 3, 1910.

When admitted, each student will be furnished with a blank containing directions for subsequent procedure.

WITHDRAWAL FROM THE DEPARTMENT

Before withdrawing from class work, even temporarily, students should report to the Assistant Dean.

Honorable Dismissal will be granted by the Assistant Dean to students whose records are clear.

FACILITIES FOR INSTRUCTION

The collections for illustrating the instruction given comprise models, drawings, photographs, lithographs, and blue prints representing trusses, arches, and details of constructon in iron, wood, and stone; sections of valves, pumps, and injectors; indicators and gauges; working models in various lines and full-sized machines; working drawings of bridges; engines, dynamos, etc. These collections are receiving additions from year to year, by gift and purchase, and are invaluable to the student.

Tests of engines and boilers, and of machinery in general, are made on request and, the profit of such work is devoted to extending the facilities of the engineering laboratory. The data of all experiments and tests made are kept in the laboratory records. Tests of materials are also conducted for private parties, and reported upon when desired.

All the laboratory work is upon a practical basis, and is done as nearly as possible as it would be done in any well arranged manufacturing establishment. The latest and best books on professional subjects are added yearly to the library, where they are accessible to all; and frequent references are made to them in the class room as the various subjects are brought forward.

PHYSICAL LABORATORY

For a description of the physical laboratory, see page 51.

CHEMICAL LABORATORY

For a description of the chemical laboratory, see page 51.

ENGINEERING SHOPS

The engineering shops are in a group of connected buildings, and occupy about 30,000 square feet of floor space.

The *Carpenter and Pattern Shop,* 40 by 127 feet, is equipped with the tools and machinery usually found in a first-class establishment. One end of the shop contains work-benches and tools needed for hand work in carpentry. The other end contains benches and tools specially adapted for pattern-making. The central portion is occupied by a good variety of wood-working machinery. A lumber and pattern loft, 40 by 120 feet, contains blue-printing apparatus, materials, and a large collection of patterns made by students.

The *Foundry,* 30 by 120 feet, is equipped with cupola and brass furnaces, core-ovens, elevator, crane, blowers, and a supply of small tools and flasks suitable for the kinds of work done. From one to two tons of castings are made weekly.

The *Forge Room,* 40 by 127 feet, contains twenty-eight modern down-draft forges, together with anvils and tools for doing all kinds of work in hand forging, and machinery for forging by mechanical processes and for working structural shapes in iron and steel. Blast is supplied to the fires by large power-driven fans, and the gases are removed and discharged into a brick stack by an exhaust fan electrically driven, which thoroughly ventilates and purifies the atmosphere of the room.

The *Machine Shop,* 40 by 127 feet, contains an assortment of engine-lathes, speed-lathes, turret-lathes, planers, shapers, milling machines, grinding machines, and various tools for working in metal. A well-equipped tool-room is connected with this shop.

In connection with each of these four shops there is a lecture and quiz room, in which are collected models, drawings, charts, diagrams, and books, which are used in the courses of instruction.

The *Instrument Shop,* 20 by 32 feet, contains a number of small lathes and drills, and the tools needed in constructing scientific and other apparatus.

The *Drawing Room,* 30 by 54 feet, is fitted with improved drawing-tables, lockers, and drawing cases for use with classes in workshop drawing and machine design.

The central portion of the building, 32 by 54 feet, contains in the basement a well-ventilated lavatory and locker-room, and on the first floor an engine room with a 10 x 20 Reynolds-Corliss engine, a store-room, and the superintendent's office.

A good part of the equipment has been designed and built in the shops. New machinery is added from time to time by construction or purchase. The entire equipment is used in instructing engineering and other students in the use of tools for working in wood and in metals, and in modern workshop methods. Opportunity is afforded to become familiar with the more common materials and forms of construction used in engineering structures, buildings, and machinery. In all work an effort is made to follow the practice of the best shops.

THE BOGARDUS ENGINEERING CAMP

Through the kindness of Colonel Charles Bogardus and his wife, Hannah W. Bogardus, of Pellston, Michigan, the University in June, 1908, acquired a tract of land embracing about 1,400 acres on the south and east shores of Douglas Lake in Cheboygan County, Michigan. This land has about three miles frontage on Douglas Lake and is splendidly adapted for field work in surveying and for the study of the biological sciences. Additional land adjacent to the present lands is being acquired, giving a frontage on Burt Lake also, through which flows a beautiful stream of spring water, known as Carp Creek. Douglas Lake, while only one and one-half miles north of Burt Lake, is between 30 and 40 feet higher, and its outlet into Burt Lake is finely adapted for power purposes. The classes in surveying occupied this new site for the first time in the summer of 1909.

MECHANICAL ENGINEERING LABORATORY

This laboratory is devoted to experimental work in connection with the testing of engines, boilers, pumps, indicators, belting, gearing, lubricants, and the strength of materials, and to such original work as can be undertaken with advantage. The work also extends to the testing of engines, boilers, and water-wheels of neighboring mills and electric plants. The Knowles and the Laidlaw-Dunn-Gordon pumping engines at the City Water Works have been fitted up by the company with special reference to the convenience of engineering students in making tests.

The steam laboratory is located in the new engineering building. It occupies a space 60 by 60 feet on the first and second floors of the north wing, with a sub-basement 42 by 17 feet and a mezzanine floor 23 by 36 feet. Adjoining the steam laboratory is a boiler room 34 by 34 feet, having a gallery eight feet wide, on the second floor, and a gallery 12 by 18 feet on the third floor.

On the first floor of the steam laboratory there is installed a 25 h. p. suction producer gas engine, by the Olds Gasoline Engine Works; a 150 h. p. Armington & Sims engine; a 75 h. p. Westinghouse compound engine; a 40 h. p. Erie Ball engine; a Worthington jet condenser; a Wheeler surface condenser with Edwards air pump and 5-inch centrifugal circulating pump. The second floor of the steam laboratory contains a combined automatic and throttling engine of a high speed type; a Fairbanks and Morse gas engine; a Meitz-Weiss kerosene engine; an Otto gas engine; a Franklin air cooled automobile engine; an Olds automobile engine; a 15 h. p. Hornsby-Ackroyd crude oil engine; a De Laval Steam Turbine direct connected to a 20 K. W. Northern direct current generator; a Curtiss Steam Turbine direct connected to a 25 K. W. General Electric Co. generator; a Blake air compressor; a Westinghouse air brake outfit; a large wet gas meter; and a small throttling engine.

The boiler room is provided with a high pressure Stirling boiler with a Buffalo Forge Co. direct steam driven, induced draft fan, a Conchrane feed water heater, econometer, and all necessary scales and tanks for boiler testing, and a 40 h. p. suction gas producer by the American Suction Gas Producer Co. On the third floor gallery of the boiler room is located a complete plant for the testing of direct steam radiators and pipe coverings. An experimental smoke-washing plant has recently been installed. On the mezzanine floor of the steam laboratory there is installed a complete equipment for testing boiler feed pumps and other small pumps. This plant consists of a large and small pressure tank; a Wheeler surface condenser with a

Blake air pump; two 50,000 pound scales with steel weighing tanks, each holding 600 cubic feet of water; and a number of boiler feed pumps.

In addition to the larger equipment enumerated above the steam laboratory is equipped with all the necessary accessory equipment which includes special apparatus for testing pressure and vacuum gauges; a special apparatus for testing indicators; apparatus for testing thermometers, both above and below the boiling point; electrical and mercury pyrometers; steam and gas indicators; thermometers; tachometers, standard weights; special plant for testing injectors; rotary and centrifugal pumps; water meters; water motors, including special Universal motor built for testing any form of bucket; and all necessary weighing tanks and scales.

On the second floor of the steam laboratory a small room has been provided for such chemical work as is ordinarily done in connection with mechanical engineering. This laboratory is equipped with coal-testing apparatus, including a Parr calormeter, coal crusher and necessary scales. It also contains an Adoos carbon dioxide recorder.

On the third floor of the north wing the 100-inch electrically driven ventilating fan for this wing has been installed especially for the investigation of fan heating problems. It is provided with a Reeves Transmission by means of which the speed can be varied from 100 to 400 revolutions per minute. The heaters are so arranged that any number of rows of heating pipes up to thirty-four can be had on either the suction or the blast side of the fan.

This fan is also provided with a discharge pipe leading into the mould loft by means of which experiments can be made to determine air pressures and resistance on bodies of different forms at velocities varying from 15 to 100 feet per second. This fan apparatus, while available for heating purposes, was designed with especial reference to experimental work. It was donated by the Buffalo Forge Co., Buffalo, N. Y., who have spared neither pains nor expense in its installation.

The two 140-inch electrically driven ventilating fans in the south and east wings, installed by the Buffalo Forge Co., are also adapted for experimental work.

THE HYDRAULIC LABORATORY

This laboratory occupies a space of 40 by 60 feet on each of the first and second floors of the north wing adjoining the steam laboratories. A canal four feet wide, fourteen feet six inches deep, and forty feet long extends across the middle of the laboratory. Water enters this canal from the naval tank and is returned to the tank by a 15 inch centrifugal pump in a well at the far end of the canal. This pump is direct connected to a 150 h. p. cross compound engine. This canal is provided with bulkheads, screens and weirs, and is arranged for testing the flow of water over weirs and through nozzles up to a capacity of twenty cubic feet per second. The bulkhead between the naval tank and the canal is arranged for weirs and nozzles so that tests may be made for flow from a still water basin as well as in running stream. The naval tank itself is arranged for bulkheads dividing it into three basins, each one hundred feet long. By means of a sluice in the bottom of the tank these basins can be connected to the hydraulic canal and the centrifugal pump, so that water can be pumped from one of the basins and delivered into either of the others. The laboratory also has two weighing tanks for calibrating purposes, each holding six hundred cubic feet. A 36-inch pressure tank, designed for 250 pounds pressure, extends through two stories. This is supplied by a Duplex pump of one million gallons capacity, and affords means for nozzle and motor experiments under high heads. An open tank eight feet wide, thirty-two feet long and five feet deep rests on a platform near the ceiling of the second floor. The centrifugal pump supplies this tank, which serves as a forebay for water wheel tests under heads up to about twenty-five feet.

The 160 h. p. tangential water wheel exhibited by the Abner Doble Co. of San Francisco at the St. Louis Exposition has recently been installed. This beautiful machine is in part a donation.

PHYSICAL TESTING LABORATORY

The Physical Testing Laboratory occupies two adjoining rooms, 22 x 41 feet and 22 x 24 feet respectively, on the ground floor of the east wing of the building, and is equipped with apparatus especially designed for testing the strength of materials used in engineering work. This equipment includes a 100,000 pound Olsen testing machine and one of 200,000 pounds capacity built by Riehlé Brothers. Both these machines are adapted to tensile, compressive and transverse tests, and are run by direct-connected electric motors. An Olsen torson machine of 240,000 inch-pounds capacity, also equipped with direct-connected motor, is used, in determining the torsical strength of shafts and axles. The cement testing laboratory is equipped for making the ordinary tests of cement and concrete. In addition to scales, sieves, briquet molds and accessories, there are two briquet testing machines made by Olsen, and a uniform load beam testing machine, specially designed for the University of Michigan, with a capacity of 85 tons, and adapted to beams of reinforced concrete, wood or steel of any span up to 12 feet.

ELECTRICAL ENGINEERING LABORATORY

A laboratory exclusively for electrical engineering occupies the basement of the south wing of the new Engineering Building. The laboratory has a total area of about 5,000 square feet. It includes two large rooms for dynamo-electric machinery, one for direct-current apparatus, 54 by 29 feet, the other for alternating-current apparatus, 54 by 27 feet. There are also two rooms for telegraph and telephone engineering, one 35 by 19 and the other 50 by 60, two rooms, each about 20 feet square, for research laboratories, and smaller rooms for storage battery, calibration of instruments, photometry, and photography and a repair shop, besides offices for the staff of the department. In 1909 the electrical engineering laboratory will be removed to the new north wing of the building, where greatly increased floor space will allow for extensive expansion of the work.

In the *Direct-Current Laboratory* are two arc light machines; three shunt generators, including a matched pair of 30 k. w. each, connected both mechanically and electrically for testing by the Hopkinson and the Kapp methods; two compound generators; two series railway motors; two shunt motors operated on the circuit of the University's power and lighting system; a balancer set for the illustration of the Edison 3-wire system; several generators of historic interest, including an early generator by Ladd of London and another by Dr. John W. Langley (formerly of this University); also a shunt generator, said to be the seventeenth machine built by the Edison Machine Company, the parent company of the General Electric Company, together with switch boards, banks of lamps, rheostats, ammeters, and voltmeters, for use with the machines.

The *Alternating Current Laboratory* includes in its equipment generators made for commercial use by the General Electric Co., the Fort Wayne Electrical Corporation, and others; an experimental twelve-phase alternator built by our students which may be connected so as to give single, two-phase, three-phase, six-phase or twelve-phase currents; an experimental machine by the General Electric Co. which by the substitution of one of its several rotors may be converted from a separately excited generator (or a synchronous motor) into an induction motor with a wound rotor or an induction motor of the squirrel cage type; rotary convertors made by the Stanley G. I. Co. and by the Fort Wayne Elect. Corp., both arranged to convert a. c. into d. c. and *vice versa*; a 70 k. w. 25 cycle two and three-phase Fisher rotary; a series single phase a. c. motor of the most recent type by the Westinghouse Electric and Manufacturing Co.; a motor generator set to convert from alternative to direct current; a single-phase induction motor by the Wagner Electric Co.; direct-current motors for driving the above generators; two constant current and a number of constant potential transformers; three 20 k. w. transformers arranged to give various voltages, either two or three phase, in connection with the rotary converters and a. c. generator; the truck and motor of a B. J. Arnold experimental single-phase electro-pneumatic locomotive; a mercury arc rectifier battery-charging set, together with switch boards, ammeters, voltmeters, wattmeters, electro-dynameters, rheostats, banks of lamps, etc., for use with the above alternating-current machinery.

The *Battery Room* has a modern storage battery of 61 cells of a capacity of 80 amperes (one hour-rating) for exclusive use of the electrical laboratory. The photometric laboratory is fitted with two photometric benches, several photometers of the latest type, a standard Hefner (acetate of amyl) lamp, British standard candles, and apparatus for testing lamps of various types with which the laboratory is well supplied.

The *Calibration Laboratory* is fitted with Kelvin balances, a General Electric oscillograph, a Rosa curve tracer, galvonometers, standard resistance, a Wolff potentiometer, a high voltage transformer for testing insulators, and a Tesla high frequency set.

The *Electrical and the Mechanical Departments* jointly have a steam turbine and direct-connected generator set for instruction purposes, which may be thrown onto the University mains to help at times of heavy load. The electrical engineering laboratory is supplied with power from three sources, viz., the University lighting and power plant (220 volt d. c.), the department's storage battery (about 125 volts d. c.), and the Washtenaw Light and Power Company's three-phase a. c. system (220 volts a. c. on secondary).

The *Laboratory for Telegraphy and Telephony* is well equipped with apparatus to illustrate commercial systems, including apparatus for duplex and quadruplex telegraphy, and various systems of telephone exchanges. The equipment for the latter includes apparatus from the Western Electric Co., the Kellogg Switchboard and Supply Co., and the Stromberg-Carlson Telephone Mfg. Co. This apparatus is so mounted that students may readily build the circuits from blueprints and study the operations necessary for telephone transmission and the construction of telephone switchboards. For this purpose the laboratory is furnished with a main switchboard, a large distributing panel and other smaller panels which are permanently connected to the distributing board. Also, for purposes of instruction, there is a single position magneto switchboard furnished by the Michigan State Telephone Co., a cabinet of automatic telephone apparatus furnished by the Automatic Electric Co., and line material and switchboard construction apparatus from the Cook Electric Co. The equipment likewise includes a Holtzer-Cabot motor generator set and two Holtzer-Cabot dynamotors, one of which is designed for ringing purposes and has a "howler," "busy back," and "don't answer" attachment.

The equipment for instruction in telegraphy includes various types of keys, sounders, relays, transmitters and special apparatus for the more complex circuits.

The Michigan State Telephone Co. has installed in one of the rooms of the electrical engineering laboratory a complete modern exchange for university use, which is at the disposal of the department for instruction purposes, and the company also is under agreement to furnish for instruction purposes a complete exhibit of duplicate parts of exchange apparatus. Occasional lectures by the Company's experts will be given before students in the department.

The *University Lighting Plant,* consisting of one 200 k. w. and two 75 k. w. Thompson-Ryan generators, is available for instruction in the department. The 200 k. w. machine is direct-connected to a compound engine run at a speed of 180 revolutions a minute. The two 75 k. w. machines are connected by the Arnold system to two simple engines and run at a speed of 250 revolutions a minute. The system is 220-volt d. c. throughout, with both incandescent and arc lamps (two in a series) on the same circuits. All the feeders and mains are placed underground in the heating tunnels except those running from the Homœopathic Hospital to the University Hospital and to the Observatory. These buildings are supplied with current from the central plant on the campus by means of heavy cables and a "booster."

The University is well situated for excursions to visit electrical power plants. There are in Ann Arbor a three-phase lighting and power hydraulic driven station, a rotary substation of the D., Y., A. A. & J. Ry. Co.; a two-phase station (hydraulic and steam) is situated at Geddes, four miles away, from which power is transmitted to Ann Arbor; a direct-current and three-phase a. c. station (steam) of the large steam turbine station and the motor generator and storage battery stations of the Detroit Edison Co. at Detroit, thirty-seven miles away, and also at the last mentioned place, the generating and substations of the Detroit United Ry. Co., and of the Public Lighting Commission, together with many isolated plants. At greater distances, but within reach, are many other electric railway, lighting and power companies. Every spring it is the custom of the Department of Engineering to organize a party which visits during the spring vacation, a considerable number of the important engineering concerns of the central and eastern states.

MARINE ENGINEERING LABORATORY

On the first floor of the New Engineering Building the east wing is devoted to the experimental tank. This tank is 300 feet long, 22 feet wide, with a depth of water of 10 feet. At the south end is a model room and work shop for the purpose of making models of vessels.

The models used in the tank for testing purposes are from ten to twelve feet long, and are made of paraffin wax. A clay mould is first made approximately to the shape desired, and a core inserted. The paraffin is then poured into the mould and after cooling, the rough model is taken to the model cutting machine. This machine consists essentially of two moving tables or platforms, upon one of which is placed the model and upon the other the drawing which it is desired to reproduce. The model moves under a pair of rotating cutters, which are made to follow the lines on the drawing. After cutting, it is brought to its final shape by hand, then carefully weighed, and sufficient ballast added to bring it to any desired draft and displacement.

The tank is spanned by a traveling truck which is driven by a motor and can be run at any desired speed. Upon this truck are mounted the dynamometers for measuring the resistance of the models of various forms at different speeds.

MOULD LOFT

The mould loft is situated on the top floor of the north wing of the Engineering Building, occupying a floor space of 3,600 square feet. The loft is fitted with the usual equipment, such as battens, bevel boards, benches for making moulds, etc.

Students are also allowed the use of the mould loft for the construction of small vessels. For this purpose steam boxes and bending slabs are provided.

OTHER LABORATORIES, LIBRARIES, AND MUSEUMS

For description of other University laboratories, libraries, and collections for the study of art, archæology, ethnology, mineralogy, geology, palæontology, zoology, etc., and for general information concerning the University, see pages 43 to 57.

VISITS OF INSPECTION

As often as practicable, visits of inspection are paid to the neighboring manufacturing establishments, to electric light and electric power stations, and to points of engineering interest, for the purpose of acquiring a knowledge of the methods employed in building, in the construction of bridges, machinery, and ships, and the best practice in electrical manufacturing and engineering on a large scale.

THE ENGINEERING SOCIETY

Several organizations of students are maintained, aside from the usual literary societies, for the reading of papers and holding discussions in various scientific lines. The Engineering Society, composed of and officered by students of this department, holds meetings, at which papers of technical interest are read, and reports made upon observations and experiments. A reading room is maintained by the society, accessible to all students of the department. Several engineers of prominence have spoken before the society in past years. A quarterly, called the Michigan Technic, containing papers read before the society, abstracts of theses, contributed articles from alumni, and other matters of professional interest, is published by the students.

American Institute of Electrical Engineers.—This society has established a University of Michigan Branch to which students are eligible. Meetings of the Branch are held twice a month, when original papers, and advance copies of papers to be read at the regular meetings of the Institute, are read and discussed. In addition to the advance copies of Institute papers, each student joining the Branch receives the Proceedings which are published monthly.

COURSES OF INSTRUCTION

The courses of instruction are subject to change from time to time; those announced for the year 1909-1910 and required for graduation, as stated on pages 273 to 277, together with some advanced, elective, and technical courses, are described on the following pages.

The courses given in the Department of Literature, Science, and the Arts, and described on pages 94 to 200, are (with the exception of the courses in French and in German, for which special permission is required) all open as electives to engineering students who are qualified to pursue them with advantage. Students desiring to elect courses offered in the Department of Literature, Science, and Arts, must receive permission from the Dean of that Department.

A student enrolled in the Department of Literature, Science, and the Arts, who desires to elect any of the work in the Department of Engineering, not included in the courses offered in the former department, must obtain written permission from the Dean of that Department, have it approved by the Assistant Dean of the Department of Engineering, and attach it to his election slip.

COURSES OFFERED IN 1909-1910

The courses offered for the year 1909-1910 are described below. The amount of credit toward graduation assigned to each course is indicated by the expressions *one hour, two hours,* etc.

ENGLISH

Consultation hours to be arranged with the instructor.

FIRST SEMESTER

1. Paragraph- and Theme-Writing. Nine sections. *Four hours.* Dr. BREITENBACH, Mr. MARCKWARDT, Dr. MORIARTY, and Mr. NELSON.

1*a*. Reading. See § 41 of Annual Announcement.

3*a*. Scientific Literature. *Two hours.* Mr. MARCKWARDT.

5. Specifications and Contracts. *Two hours.* Dr. BREITENBACH.

7*a*. Advanced Composition. *One hour.* Mr. NELSON.

8. Commercial Correspondence. *Two hours.* Dr. MORIARTY.

SECOND SEMESTER

1. Paragraph- and Theme-Writing. Eight sections. *Four hours.* Dr. BREITENBACH, Mr. MARCKWARDT, Dr. MORIARTY, and Mr. NELSON.

1*a*. Reading. See § 41 of Annual Announcement.
2. Technical Journalism. *Two hours.* Dr. Breitenbach.
3*b*. Scientific Literature. *Two hours.* Mr. Marckwardt.
6. Studies in Exposition. *Two hours.* Mr. Nelson.
7*b*. Advanced Composition. *One hour.* Mr. Nelson.
8. Commercial Correspondence. *Two hours.* Dr. Moriarty.

GERMAN

The aim of the instruction in German is to help the student to a reading and speaking knowledge of the language. Special attention is paid to scientific literature. Elective courses are offered for the accommodation and benefit of students who have the time and inclination to carry their language work beyond the limits of the required courses.

BOTH SEMESTERS

1. Elementary Course. Grammar and reading, with constant practice in writing and speaking German. Three sections first semester, two sections second semester. *Four hours.* Mr. Weck, Mr. Wild, and Dr. Lee.
2. Elementary Course continued. Grammar and reading, with constant practice in writing and speaking German. Three sections. *Four hours.* Dr. Hauhart, Mr. Weck, and Mr. Wild.
3. Reading of German Scientific Literature. Nine sections the first semester and three the second. *Four hours.* Professor Wait, Dr. Hauhart, Mr. Weck, Mr. Wild, and Dr. Lee.
4. Reading of German Scientific and Technical Literature. Three sections the first semester and nine the second. *Four hours.* Professor Wait, Dr. Hauhart, Mr. Weck, Mr. Wild, and Dr. Lee.

In Courses 3 and 4 students of special aptitude and proficiency are given opportunity and encouraged to do extra work.

5. Advanced Course in German Scientific and Technical Literature. *Three* or *four hours.* (Elective.) Professor Wait.

FRENCH

The aim of the instruction in French is to help the student to a reading and speaking knowledge of the language. Special attention is paid to scientific literature. Elective courses are offered for the accommodation and benefit of students who have the time and inclination to carry their language work beyond the limits of the required courses.

BOTH SEMESTERS

1. Elementary Course. Grammar and reading, with constant practice in writing and speaking French. Five sections the first semester and three the second. *Four hours.* Assistant Professor Bird, Dr. Adams, Mr. Kenyon, and Mr. Hurlburt.

2. Elementary Course continued. Three sections each semester. *Four hours.* Assistant Professor Bird, Dr. Adams, and Mr. Hurlburt.
3. Reading of French Scientific Literature. Two sections. *Four hours.* Dr. Adams and Mr. Hurlburt.
4. Reading of French Scientific and Technical Literature. Two sections. *Four hours.* In Courses 3 and 4 students of special aptitude and proficiency are given opportunity and encouraged to do extra work. Assistant Professor Bird and Mr. Kenyon.
5. Advanced Course in French Scientific and Technical Literature. *Three* or *four hours.* (Elective.) Assistant Professor Bird.

SPANISH

The courses in Spanish are largely conversational, and are offered chiefly to meet the demands of students looking forward to a professional career in countries where Spanish is the prevailing medium of communication.

Opportunity for advanced work in Spanish is offered to students who desire to make themselves specially proficient in this language.

BOTH SEMESTERS

1. Elementary Course. Grammar and reading, with constant practice in writing and speaking Spanish. Three sections the first semester and two the second. *Four hours.* Dr. Adams, Mr. Kenyon, and Mr. Hurlburt.
2. Elementary Course continued. Grammar and reading, with constant practice in writing and speaking Spanish. One section the first semester and three the second. *Four hours.* Assistant Professor Bird, Dr. Adams, and Mr. Kenyon.
3. Reading, Conversation, and Business Correspondence. *Four hours.* Mr. Kenyon.
4. Reading, Conversation, and Business Correspondence. Continuation of Course 3. *Four hours.* Mr. Kenyon..

MATHEMATICS

It is the object of the courses in Mathematics not only to impart to the student the mathematical knowledge requisite for the study of the various branches of engineering, but to train his mind in the methods of precise reasoning and accustom him to the proper application of general principles to particular cases.

Students desiring to pursue their mathematical studies further will find a large list of electives among the courses in pure and applied mathematics offered in the Department of Literature, Science, and the Arts.

FIRST SEMESTER

1E. Algebra and Analytic Geometry (I). Fifteen sections. *Four hours.* Professor BUTTS, Mr. ESCOTT, Mr. HOPKINS, Mr. LINDQUIST, Mr. POOR, Mr. STEVENS, Dr. HILDEBRANDT, and Mr. DRYZER.

1*a*. Plane Trigonometry. Six sections. *Two hours.* Mr. ESCOTT, Mr. LOVE, Mr. POOR, Dr. STONE, and Mr. STEVENS.

2E. Analytic Geometry (II). Five sections. *Four hours.* Mr. LOVE, Mr. HOPKINS, Mr. LINDQUIST, Dr. HILDEBRANDT, and Mr. DRYZER.

2*b*. Solid Analytic Geometry. *Two hours.* Dr. HILDEBRANDT.

3E. Calculus. Twelve sections. *Five hours.* Professors ZIWET, MARKLEY, and BUTTS, Assistant Professors RUNNING and FIELD, Mr. HOPKINS, Mr. LOVE, Mr. POOR, Dr. STONE, and Dr. HILDEBRANDT.

4E. Calculus and Mechanics (I). Six sections. *Five hours.* Assistant Professors FIELD and RUNNING, Mr. ESCOTT, Mr. LOVE, and Dr. STONE.

5*a*. Calculus and Mechanics (II). Five sections. *Five hours.* Professors ZIWET and GLOVER, Assistant Professors FORD, FIELD, and RUNNING.

17. Theory of the Potential. *Three hours.* Professor ZIWET. (Elective.)

39. Hydrodynamics (I). *Two hours.* Professor ZIWET. (Elective.)

57. Curve Tracing. *Two hours.* Assistant Professor RUNNING. (Elective.)

SECOND SEMESTER

1E. Algebra and Analytic Geometry (I). Five sections. *Four hours.* Mr. LINDQUIST, Mr. STEVENS, Mr. POOR, and Mr. DRYZER.

1*a*. Plane Trigonometry. Two sections. *Two hours.* Mr. HOPKINS and Mr. POOR.

2E. Analytic Geometry (II). Fourteen sections. *Four hours.* Professor BUTTS, Mr. LINDQUIST, Mr. STEVENS, Mr. LOVE, Mr. HOPKINS, Mr. POOR, Dr. STONE, Dr. HILDEBRANDT, and Mr. DRYZER.

2*a*. Spherical Trigonometry. *Two hours.* Dr. STONE. (Elective.)

3E. Calculus. Five sections. *Five hours.* Mr. ESCOTT, Mr. LOVE, Mr. HOPKINS, and Dr. STONE.

4E. Calculus and Mechanics (I). Fourteen sections. *Five hours.* Professors ZIWET, MARKLEY, and BUTTS, Assistant Professors RUNNING and FIELD, Mr. ESCOTT, Mr. LOVE, Mr. HOPKINS, Mr. POOR, Dr. STONE, and Dr. HILDEBRANDT.

5*a*. Calculus and Mechanics (II). Five sections. *Five hours.* Professor GLOVER, Assistant Professors RUNNING, FIELD, and FORD, and Mr. ESCOTT.

16. Advanced Mechanics. *Three hours.* Assistant Professor FIELD. (Elective.)
40. Hydrodynamics (II). *Two hours.* Professor ZIWET. (Elective.)
58. Curve Fitting. *Two hours.* Assistant Professor RUNNING. (Elective.)

PHYSICS

The instruction in general physics covers a thorough course with the use of trigonometry and extends through an entire year. The first semester is devoted to mechanics, sound, and light; the second to heat, electricity, and magnetism. The subjects are amply illustrated with appropriate experiments accompanying the lectures. Two additional courses in the laboratory introduce the student to quantitative methods in the study of physics, and prepare him for the more difficult and exacting work in electrical measurements.

FIRST SEMESTER

1. General Physics. Mechanics, Sound, and Light. Lectures and recitations. Three sections. *Four hours.* Professor REED, Mr. WILLIAMS and Mr. SLEATOR.

In Courses 1 and 1E a knowledge of plane trigonometry is essential.

1*a*. Physical Problems. *One hour.* Professor REED.

Course 1*a* must be preceded or accompanied by Course 1.

1E. General Physics: Mechanics, Sound, and Light. *Five hours.* Assistant Professor HENDERSON, Dr. MELLENCAMP, Dr. COLBY, Mr. RICH, Mr. JENNER, Mr. HARRIS, Mr. WILDER, and Mr. SHELLENBARGER.

3. Physical Laboratory Work for Beginners. *Two* or *three hours.* Mr. RICH.

5. Electrical Measurements. Lectures, recitations, and laboratory work. *Four hours.* Assistant Professor SMITH, Dr. COLBY, and Mr. JENNER.

Course 5 must be preceded by Courses 1, 2, and 3*a* or 3*b*. A knowledge of calculus is also required.

6. Sound. Lectures and laboratory work. *Four hours.* Professor REED and Mr. SLEATOR.

Course 6 must be preceded by Course 1 and by Course 3*a* or 3*b*. A knowledge of calculus is also required.

7. Intermediate Course in Electricity and Magnetism. *Three hours.* Professor GUTHE.

Course 7 must be preceded by Course 2. A knowledge of calculus is also required.

[8. Theory of Heat: Preston. *Two hours.* Assistant Professor RANDALL.

Omitted in 1909-1910.]

9. Heat. Laboratory work. *Two hours.* Assistant Professor RANDALL.
   Course 9 must be preceded by Course 2.

10. Advanced Course in Electricity and Magnetism: Barnett. Professor GUTHE.
   A knowledge of calculus is required.

14. Sound. Advanced laboratory work. *Two hours.* Professor REED.
   Course 14 must be preceded by Course 6.

17. Measurements of High Temperature. *One hour.* Assistant Professor RANDALL.

19. Physical Colloquium. Professors REED and GUTHE.
   Reports on original research, together with analysis and discussion of important articles in current physical literature. All instructors, assistants, and graduate students in the department take part in the Physical Colloquium. While intended primarily for graduate students, it is also open to undergraduate students doing advanced work.

21. Electrochemistry. *Two hours.* Assistant Professor HENDERSON.

SECOND SEMESTER

2. General Physics. Heat and Electricity. Lectures and recitations. Three sections. *Four hours.* Professor REED, Mr. WILLIAMS, and Mr. SLEATOR.
   Course 2 must be preceded by Course 1; it also presupposes some knowledge of general chemistry.

2*a*. Continuation of Course 1*a*. *One hour.* Professor REED.

2E. General Physics. Heat and Electricity. Lectures and recitations. *Five hours.* Assistant Professor HENDERSON, Dr. MELLENCAMP, Dr. COLBY, Mr. RICH, Mr. JENNER, Mr. HARRIS, Mr. WILDER, and Mr. SHELLENBARGER.
   Course 2E is a continuation of Course 1E.

3. Physical Laboratory Work for Beginners. Repetition of Course 3. *Two* or *three hours.* Mr. RICH.

4. Advanced Laboratory Work. Recitations and laboratory work. Four sections. *Two hours.* Dr. MELLENCAMP and Dr. COLBY.
   Course 4 must be preceded by Courses 1, 2 (or 1E and 2E), 3*a* or 3*b*, and a course in general or analytical chemistry.

7*a*. Intermediate Course in Electricity and Magnetism. Continuation of Course 7. *Three hours.* Professor GUTHE.

7*b*. Alternating Current Phenomena. Lectures and laboratory work. *Two hours.* Mr. WILLIAMS.
   Course 7*b* must be preceded by Course 7.

[9. Heat. Laboratory work. *Two hours.* Assistant Professor RANDALL.
   Course 9 will not be given in 1909-1910, but may be expected in 1910-1911.]

11. Theory of Light: Preston. Recitations and laboratory work. *Four hours.* Professor Reed.
    Course 11 must be preceded by Course 6.
12. Electrical Measurements. Continuation of Course 5. Recitations and laboratory work. Two sections. *Three hours.* Assistant Professor Smith and Dr. Colby.
15. Light. Advanced laboratory work. *Two hours.* Professor Reed.
16*a*. Thermodynamics. *Two hours.* Continuation of Course 16. *Two hours.* Professor Guthe.
[17. Measurements of High Temperature. *One hour.* Assistant Professor Randall.
    Course 17 will not be given in 1909-1910, but may be expected in 1910-1911.]
18. Electrochemistry. Modern theories studied from the point of view of physics. *Four hours.* Assistant Professor Henderson.
19*a*. Continuation of Course 19. Professors Reed and Guthe.
20. Electricity and Magnetism. *Two hours.* Professor Guthe.
    Course 20 must be preceded by Course 10.
[22. The Electron Theory. *Two hours.* Professor Guthe.
    Course 22 will not be given in 1909-1910, but may be expected in 1910-1911.]

CHEMISTRY

Students admitted with a deficiency in entrance chemistry must remove it by completing Curses 1 and 1*a*, but the credit thus obtained is entered on the admission, not the graduation requirements.

Other courses in chemistry are given in the Department of Literature, Science, and the Arts, and may be elected by students of the Department of Engineering who have had the requisite preparation.

FIRST SEMESTER

1. Elementary Inorganic Chemistry. Experimental lectures and recitations. Three sections. *Two hours.* (For entrance see above.) Professor Bigelow.
1*a*. Laboratory Course accompanying Course 1. Six sections. *Two hours.* Mr. Smeaton, Dr. Lind, Mr. Bartell, and Mr. Hunter.
2E. Principles in Inorganic Chemistry. Lectures and recitations. Seven quiz sections. *Four hours.* Mr. Smeaton and Mr. Hard.
    Open to those who have passed the entrance requirements in chemistry.
3. Qualitative Analysis. Recitations and laboratory work. *Seven hours.* Professor Johnson.
    Open to those who have completed Courses 2 and 2*a*, or 2E.

3*a*. Qualitative Analysis. Recitations and laboratory work. Two sections. *Four hours.* Professor JOHNSON, Mr. CARNEY, Mr. COLE, and Dr. WILLARD.

Open to those who have completed Courses 2 and 2*a*, or 2E.

3*b*. Qualitative Analysis. Continuation of Course 3*a*. *Four hours.* Mr. CARNEY.

5. Quantitative Analysis. Beginning course. Recitations and laboratory work. *Five hours.* Professor CAMPBELL and Mr. WILLARD.

Open to those who have completed Course 3 or 3*b*.

7. Organic Chemistry. Lectures and library studies. *Five hours.* Professor GOMBERG.

Open to those who have completed Course 3 or 3*b*.

28. Advanced Quantitative Analysis. Laboratory work. *Five hours.* Mr. WILLARD.

Open to those who have completed Course 5.

29. Iron and Steel Analysis. Laboratory work. *Five hours.* Professor CAMPBELL.

Open to those who have taken Course 28 and who receive special permission.

31. Independent Work in Mineral Analysis. Laboratory work. *Five hours.* Professor CAMPBELL.

Open to those who have completed Course 28.

34. Chemical Reading. *One hour.* Professor CAMPBELL.

Course 34 requires special permission.

42. Organic Synthesis. Laboratory work. *Three, four,* or *five hours.* Professor GOMBERG and Dr. CONE.

Course 42 must be preceded by Course 5 and preceded or accompanied by Course 7.

47. Organic Analysis. The technical examination of various organic products such as are used in the arts, manufactures, etc. Laboratory work with collateral reading. *Credit to be arranged.* Professor GOMBERG.

Course 47 must be preceded by Courses 5 and 7.

SECOND SEMESTER

2E. Principles of Inorganic Chemistry. Lectures and recitations. Seven quiz sections. *Four hours.* Mr. SMEATON and Mr. HARD.

Open to those who have passed the entrance requirements in chemistry.

2. Elementary Inorganic Chemistry. Lectures and recitations. Continuation of Course 1. Three sections. *Two hours.* Assistant Professor HALE.

2*a*. Laboratory Course accompanying Course 2. Five sections. *Two hours.* Mr. SMEATON and Mr. BARTELL.

Courses 2 and 2*a* are to be taken in place of 2E by students who have taken Courses 1 and 1*a*.

3. Qualitative Analysis. Recitations and laboratory work. *Seven hours.* Professor Johnson, Mr. Carney, and Mr. Cole.
Open to those who have completed Courses 2 and *2a*, or 2E.

3*a*. Qualitative Analysis. Recitations and laboratory work. Four sections. *Four hours.* Professor Johnson, Dr. Willard, Mr. Carney, and Mr. Cole.
Open to those who have completed Courses 2 and *2a*, or 2E.

3*b*. Qualitative Analysis. Continuation of Course 3*a*. Two sections. *Four hours.* Mr. Carney.

5. Quantitative Analysis. Beginning course. Recitations and laboratory work. *Five hours.* Professor Campbell and Mr. Willard.
Open to those who have completed Course 3 or 3*b*.

10. Chemistry of Carbon Compounds. *Four hours.* Professor Gomberg.
Open to those who have completed Course 3 or 3*b*, and who receive special permission.

27. Chemistry of Rare Elements. *Four hours.* Mr. Carney.
Open to those who receive special permission.

28. Advanced Quantitative Analysis. Laboratory work. *Five hours.* Mr. Willard.
Open to those who have completed Course 5.

29. Iron and Steel Analysis. Laboratory work. *Five hours.* Professor Campbell.
Open to those who have taken Course 28 and who receive special permission.

31. Independent Work in Mineral Analysis. Laboratory work. *Five hours.* Professor Campbell.
Open to those who have completed Course 28.

34. Chemical Reading. *One hour.* Professor Campbell.
Course 34 requires special permission.

42. Organic Synthesis. Laboratory work. *Three, four,* or *five hours.* Professor Gomberg and Dr. Cone.
Course 42 must be preceded by Course 5 and preceded or accompanied by Course 7.

47. Organic Analysis. The technical examination of various organic products such as are used in the arts, manufactures, etc. Laboratory work with collateral reading. *Credit to be arranged.*
Course 47 must be preceded by Courses 5 and 7.

ASTRONOMY

Courses 1 and 2 are designed to give a general view of modern Astronomy. They are mainly descriptive and may be taken one as the continuation of the other, or independently, as desired.

Courses 3 and 4 treat of the theory and practice of making and reducing astronomical observations. These courses require day and night work at the Observatory during a portion of the semester.

A knowledge of Integral Calculus is necessary for Courses 5, 6, and 7.

FIRST SEMESTER

1. General Astronomy. The Solar System. Two sections. *Two hours.* Professor HUSSEY.

A descriptive course, including the fundamental principles of Astronomy, and a presentation of the leading facts respecting the sun, moon, planets and comets. Occasional lantern illustrations.

4. Advanced Practical Astronomy. Studies in Spherical Astronomy. Recitations and observational work. *Two hours.* Professor HUSSEY.

Theory of the equatorial and its use in observational work illustrating modern practice. Reduction of measurements. Open to those who have had Course 3, or its equivalent.

5. Theoretical Astronomy. *Three hours.* Professor HUSSEY.

The elements of Celestial Mechanics, and theory and practice in the determination of parabolic and elliptic orbits. This course presupposes a knowledge of Integral Calculus.

8. History of Astronomy. *Two hours.* Assistant Professor CURTISS.

The history of Astronomy from the time of Newton, but treating especially of the development of the science during the past century. Open to those who have had Courses 1 and 2, or an equivalent, of which this may be regarded as a continuation.

10. Elementary Practical Astronomy. *Two hours.* Assistant Professor CURTISS.

Constellation studies and telescopic examinations of the heavenly bodies. Selected problems with the celestial globe and the equatorial telescope. Recitations during a portion of the semester at the University. Also observational work during the day and at night at the Observatory.

11. Variable Stars. *Two hours.* Assistant Professor CURTISS.

Lectures at the University and observational studies of selected stars at the Observatory.

12. Spectroscopic Binaries. *Two hours.* Assistant Professor CURTISS.

Theory and practice in the determination of orbits from spectroscopic measurements of motion in the line of sight, and from photometric observations of variation in brightness. Course 9 is a prerequisite.

14. Advanced Mathematical Astronomy. Studies in continuation of Course 7 will be arranged for those qualified to take them. *Hours and credit to be arranged.* Offered both semesters.

SECOND SEMESTER

2. General Astronomy. Stars and Nebulae. Two sections. *Two hours.* Professor HUSSEY.
   A general descriptive course in stellar and nebular astronomy. Occasional lantern illustrations. May be taken in continuation of Course 1, or independently, as desired.

3. Practical Astronomy. *Two hours.* Assistant Professor CURTISS.
   The elements of Spherical Astronomy. Theory of the sextant and transit and their use in the solution of practical problems, including determinations of time, latitude, azimuth, and longitude. The observational work at the Observatory in connection with this course will be varied to suit the needs of students from the different departments.

6. Least Squares and Empirical Curves. *Two hours.* Assistant Professor CURTISS.
   Theory of the combination and adjustment of observations according to the Method of Least Squares. Construction of empirical curves in the solution of experimental problems.

7. Advanced Theoretical Astronomy. *Three hours.* Professor HUSSEY.
   Definite determination of orbits. Theory of Interpolation and Mechanical Quadrature. Special Perturbations. Open to those who have had Course 5.

9. Astrophysics. *Two hours.* Assistant Professor CURTISS.
   An introductory course in the Principles of Spectroscopy. General treatment of methods and results, having reference to the interpretation of solar and stellar phenomena. Practice in the measurement and reduction of spectrograms will form a portion of the course. A general knowledge of physics, astronomy, and calculus is required.

10. Elementary Practical Astronomy. *Two hours.* Assistant Professor CURTISS. See announcement for first semester.

14. Advanced Mathematical Astronomy. See announcement for first semester.

MINERALOGY AND PETROGRAPHY

Courses 1, 4, 5, and 9 are designed to meet the needs of students of Civil Engineering, Forestry, and Pharmacy, teachers of the sciences in secondary schools, and others who desire a knowledge of the more common minerals and rocks, as well as the methods employed in their determination. Courses 2, 5, 9, and 12 are especially adapted to students of Geology, Chemical Engineering, and others who desire a more comprehensive knowledge of the subject. For advanced students in Geology Courses 2, 5, *6a,* 9, 10, and 11 are strongly recommended. Students pursuing advanced work in light in the department of Physics are advised to take Courses 2, 3, and 6. Aside from the more general courses, students specializing in Mineralogy are required to take Courses 3, 6, 7, 8, 10, 11 and 12. All courses are given in the Mineralogical Laboratory in the basement of Tappan Hall.

FIRST SEMESTER

1. Elements of Mineralogy. Lectures and laboratory work. *Two hours.* Professor Kraus, Mr. Hunt, and assistants.

   This course includes the elements of crystallography, physical and chemical properties, occurrence, uses, and determination of the more common minerals. For this course a knowledge of elementary inorganic chemistry is necessary.

2. General Mineralogy. Lectures and laboratory work. *Five hours.* Professor Kraus, Mr. Hunt, and assistants.

   Students who have successfully completed Course 1 may elect this course as Course *2a* and receive *three hours* credit.

   Principles of crystallography, physical and chemical properties, origin, formation, decomposition, distribution, uses and determination of the more important minerals. Prerequisites, Chemistry 2 and 3.

3. Crystal Measurements. Measurement, calculation, and projection of crystals. Lectures and laboratory work. *Three hours.* Professor Kraus and Mr. Hunt.

   This course is given both semesters and may be pursued for either one or two semesters. Prerequisite, Course 2.

4. Determinative Mineralogy. Laboratory work. *Two hours.* Mr. Hunt and Mr. Cook.

   Intended for students who have completed Course 1 and wish to become more proficient in the determination of minerals by means of their physical characters.

5. Qualitative Blowpipe Methods. Lectures and laboratory. *Two hours.* Mr. Hunt.

   This course involves the use of blowpipe reactions upon charcoal and plaster tablets, as well as other chemical methods useful in the determination of minerals. Prerequisites, Course 2, or Courses 1 and 4. Since only a limited number can be accommodated in this course, students are advised to consult the instructor as early as possible.

8. Research Work. Laboratory work. *Credit to be arranged.* Professor Kraus, Mr. Hunt, and Mr. Clark.

   For students, who are properly qualified, opportunity is given for original research along the lines of crystallographic measurements, chemical crystallography, the formation and origin of minerals, blowpipe methods, and petrography.

9. Lithology. Lectures and laboratory work. *Two hours.* Mr. Clark.

The lectures include, aside from a review of the rock-forming minerals, a discussion of the origin, modes of occurrence, alterations, methods of determination and uses of the more important rocks. In the laboratory the student is required to determine by means of the macro-physical properties a large number of rock specimens. Numerous field excursions will also be made in order to acquire facility in the rapid determination of rocks in the field. Prerequisites, Mineralogy 1 and Geology 1.

10. Petrography. Lectures and laboratory work. *Three hours.* Mr. Clark.

After reviewing the optical characters and methods of investigation of crystals, the various properties of the important rock minerals are discussed in detail. The mineralogical and chemical composition, texture, genesis, forms of occurrence, and metamorphism of rock are then studied. The laboratory work is devoted to the systematic study of rock minerals and rocks with the aid of the polarizing microscope. Prerequisites, Mineralogy 2 or 1 and 4, 6 or 6*a*, and 9.

12. Quantitative Blowpipe Methods. Reading and laboratory work. *Two hours.* Mr. Hunt.

Practice in assaying by blowpipe methods of various kinds of ores, especially those of gold and silver. Prerequisite, Course 5.

SECOND SEMESTER

1. Elements of Mineralogy. Lectures and laboratory work. *Two hours.* Professor Kraus, Mr. Hunt, and assistants.

This course includes the elements of crystallography, physical and chemical properties, occurrence, uses, and determination of the more common minerals. For this course a knowledge of elementary inorganic chemistry is necessary.

3. Crystal Measurements. Measurement, calculation, and projection of crystals. Lectures and laboratory work. *Three hours.* Professor Kraus and Mr. Hunt.

This course is given both semesters and may be pursued for either one or two semesters. Prerequisite, Course 2.

4. Determinative Mineralogy. Laboratory work. *Two hours.* Mr. Hunt and Mr. Cook.

Intended for students who have completed Course 1 and wish to become more proficient in the determination of minerals by means of their physical character.

5. Qualitative Blowpipe Methods. *Two hours.* Mr. Hunt.

This course involves the use of blowpipe reactions upon charcoal and plaster tablets, as well as other chemical methods useful in the determination of minerals. Prerequisites, Course 2, or Courses 1 and 4. Since only a limited number can be accommodated in this course, students are advised to consult the instructor as early as possible.

6. Physical Crystallography. Lectures and laboratory work. *Four hours.* Professor KRAUS, Mr. HUNT, and Mr. CLARK.
   This course involves a critical study of the various properties of crystals, including the use of the polarizing microscope and other crystallographic-optical instruments. Must be preceded by Course 2 and, if possible, by Course 3.
   Students desiring to study only the optical properties of crystals may elect this course as 6*a* and receive *three hours credit.*
7. Current Literature of Mineralogy. *One hour.* Professor KRAUS.
   The instructors and advanced students meet once a week to discuss important current literature.
8. Research Work. Laboratory work. *Credit to be arranged.* Professor KRAUS, Mr. HUNT, and Mr. CLARK.
   For students, who are properly qualified, opportunity is given for original research along the lines of crystallographic measurements, chemical crystallography, the formation and origin of minerals, blowpipe methods, and petrography.
9. Lithology. Lectures and laboratory work. *Two hours.* Mr. CLARK.
   The lectures include, aside from a review of the rock-forming minerals, a discussion of the origin, modes of occurrence, alterations, methods of determination, and uses of the more important rocks. In the laboratory the student is required to determine by means of the macro-physical properties a large number of rock specimens. Numerous field excursions will also be made in order to acquire facility in the rapid determination of rocks in the field. Prerequisites, Mineralogy 1 and Geology 1.
11. Petrography. Lectures and laboratory work. *Three hours.* Mr. CLARK.
    This is a continuation of Course 10.

GEOLOGY

The courses in Geology are planned to meet the requirements of: (a) those desiring a general knowledge of geology as part of a liberal education (Courses 1, 2, and 3); (b) students of engineering whose profession makes some knowledge of geology essential; (c) teachers of science in secondary schools (Courses 1, 2, 3, and 13); (d) men who are to have in their hands the control or operation of mines (See the announcement concerning mine administration under Courses in Commerce); (e) consulting geologists and geological engineers (See a special announcement of the six-year course in engineering) and (f) professional geologists. Students intending to become professional geologists are advised to be well grounded in physics and chemistry and to take a full year of work in mineralogy. Those intending to specialize in paleontology are required to have some knowledge of elementary biology. Except for Courses 3, 12 and 13, Course 1 or its equivalent is a necessary prerequisite. The more advanced courses of the department, which interest a relatively small number of students, are generally given in alternate years.

Research is especially encouraged along the lines of structural geology, paleontology, tectonic geography, glacial geology, and seismic geology. One or more advanced students may generally make arrangements for summer field work in connection with collecting trips in paleontology.

FIRST SEMESTER

1. Elements of Geology. Lectures and recitations, supplemented by excursions during the open season and by laboratory work during the winter months. Several quiz and laboratory sections. *Three hours.* Professor Hobbs, Assistant Professor Case, Mr. Scott, and assistants.

2. Historical Geology. An outline history of the development of the continent and of the appearance and extinction of plants and animals, from the records in the rocks. Lectures and laboratory. *Three hours.* Assistant Professor Case and assistant.

3. Physiography. A course especially recommended to teachers. Lectures and laboratory work, with recitations, which treat of physiographic processes and the genesis of earth features. *Three hours.* Mr. Scott and assistant.

   Excursions to points in the vicinity of Ann Arbor will serve to illustrate especially the topographic features of lake shores, of river erosion, and of a glaciated country.

5. Seismic Geology. A study of earthquakes from both the geological and geophysical sides. The distribution of seismicity over the globe, and within special provinces, the methods of locating lines of special danger from earthquakes, the mitigation of their disastrous consequences, the "distant" study of greater earthquakes, and the use of earthquake instruments, will all be included in the course. *Two hours.* Professor Hobbs.

   Work in Seismic Geology may be continued by special arrangement.

7. Structural and Stratigraphic Geology. A course of lectures in structural geology, twice weekly, supplemented by conferences and reports made after study of selected geological folios issued by the United States Geological Survey. The object of the course is not merely to familiarize the student with the structures characteristic of rock formations, but also to afford a measure of skill in reading geologic maps and sections. Given in alternate years, beginning in 1909-1910. *Five hours.* Professor Hobbs and Mr. Allen.

This may be elected with two hours credit by those who have taken Course 11 with five hours credit.

8. Current Literature of Geology. Advanced students of the department, and others who desire, will meet for reports and discussions of the recent literature of geology. *No credit given.* Professor Hobbs, Assistant Professor Case, Mr. Scott, Mr. Allen, and Mr. Leverett.

[9. Vertebrate Paleontology. A course in comparative osteology and the morphology of the hard parts of vertebrates. Especial attention is paid to the origin and development of structures in extinct forms which lead up to the living ones. The facts of paleontology are brought to bear on the questions of adaptive radiation and the migration of faunas. *Five hours;* given in alternate years, beginning in 1910-1911. Assistant Professor Case.]

11. Development of the North American Continent. A course of lectures given twice weekly supplemented by conferences and reports prepared after a study of geological folios issued by the United States Geological Survey. The folios studied are so chosen as to bring out in sequence the detail in the development of the North American Continent. Given in 1909-1910 and alternate years. *Four hours.* Assistant Professor Case and Mr. Allen.

13. Origin and Development of Vertebrate Animals and Man. A lecture course describing the ancestral forms with the lines of descent of the more important domestic and wild animals. The origin and descent of man is discussed as a special topic. *Two hours.* Assistant Professor Case.

[17. Metomorphism and Ore Deposits. A study of geology from the physico-chemical standpoint with special reference to the nature, genesis, and exploitation of ore deposits. This course is intended for students who have completed Mineralogy 2, or its equivalent, and Geology 1 and 2. Geology 16 should precede this course, but is not required of students who are otherwise qualified. Given in 1910-1911 and alternate years. *Five hours.* Mr. Allen.]

19. Geology of the Lake Superior Region. A study of the principles of Pre-Cambrian geology and their practical application to field and laboratory study. Special attention is given to the geology of the Lake Superior Region, geologically the most important of the Pre-Cambrian areas from both the scientific and the economic standpoints. The course includes a detailed study of the iron and copper deposits of the region. Geology 1 and 2 and a course in mineralogy are prerequisites. Given in alternate years beginning in 1909-1910. *Three hours.* Mr. Allen.

SECOND SEMESTER

1. Elements of Geology. A repetition of Course 1 of the first semester. Lectures, a number of quiz and laboratory sections. Excursions on Saturday mornings after Easter. Professor Hobbs, Mr. Scott, Mr. Allen, and assistants.

2. Historical Geology. A repetition of Course 2 of the first semester. Assistant Professor Case and assistant.

4. Systematic Invertebrate Paleontology. A course dealing with the chief forms of invertebrate fossils both from the organic standpoint of origin and development, and from the faunistic side as indicators of the different geological formations. Lectures and laboratory. *Five hours.* Assistant Professor Case and assistant.

Work in invertebrate paleontology can be continued by special arrangement.

6. Field Geology. A study of the methods of preparing field maps in geology. Each student, equipped with simple instruments, will prepare topographic maps of districts near Ann Arbor, and enter upon them the glacial formations represented. *Two or three hours, as arranged.* Mr. Scott.

[10. History of Geology. An advanced course treating of the development of the science of Geology and of the lives and teachings of its founders, given in 1910-1911 and alternate years. *Five hours.* Professor Hobbs.]

12. Elementary Meteorology. This course is designed to follow the course in physiography and is an elementary treatment of the dynamics of the atmosphere. In it will be discussed the properties and movements of the atmosphere, weather and its variations, with some account of weather prediction. *Three hours.* Mr. Scott.

[14. Tectonic Geology. An advanced course which treats of the larger problems of the tectonics of the globe as developed especially by Eduard Suess in his great work, *The Face of the Earth.* The work will be conducted by reports and discussions on the seminary plan of specially selected chapters from the three volumes of the work cited. Given in 1910-1911 and in alternate years. *Five hours.* Professor Hobbs.]

15. Soil Geology. A comprehensive survey of the subject including the origin of soils, their physical and chemical constitution, the influence of climate on soil fertility, irrigation and drainage, tillage, fertilizers, etc., and a consideration of the regolith of the United States in relation to geologic, physiographic, and climatic factors. *Three hours.* Mr. Allen.

16. Economic Geology. A general course treating of the nature and distribution of metallic and non-metallic mineral resources with special emphasis on ores of prime industrial importance. A course in mineralogy is a prerequisite. *Three hours.* Mr. Allen.

18. Glacial Geology. A course in the interpretation of glacial features given by lectures. Criteria for correlation of drift sheets and comparison of American with European deposits will be introduced. Given in alternate years beginning in 1909-1910. *One hour.* Mr. LEVERETT.

[20. Physiography and Glacial Geology of Europe. A course of twelve lectures dealing with (1) the main physiographic features of Europe, (2) the manner and the order of their development, and (3) their relation to the peopling of the continent. Given in alternate years beginning in 1910-1911. *One hour.* Mr. LEVERETT.]

21. Glacial Field Studies. Weekly field excursions to study the glacial formations accessible from Ann Arbor. Supplementary to Courses 18 and 20. The excursions are made different in consecutive years so that advanced students particularly are advised to repeat the course. Saturday afternoons after Easter vacation. *One hour.* Mr. LEVERETT.

DRAWING

FIRST SEMESTER

2. Free-Hand Drawing. Pencil, Pen and Ink. Sketching. Two sections. *Two hours.* (Elective.) Miss HUNT.
4. Descriptive Geometry. Recitations and Drawing. Eleven sections. *Four hours.* Mr. BARTLETT, Mr. FISHLEIGH, Mr. FINCH, Mr. VERNER, Mr. MILLER, Mr. FOSTER, Mr. ABBOTT, and Mr. KRISTAL.
5. Advanced Projections and Stereotomy. *Four hours.* Professor GOULDING.

Course 5 must be preceded by Course 4.

6. Applied Projections. Four sections. *Two hours.* Mr. FINCH and Mr. VERNER.
8. Continuation of Course 7. *Two hours.* (Elective.) Miss HUNT.

Course 8 must be preceded by Courses 2, 3, and 7.

9. Water-Color Drawing. Historic Ornament and Design. *Three hours.* (Elective.) Miss HUNT.
10. Free-Hand Lettering. *Two hours.* (Elective.) Mr. FOSTER, Mr. ABBOTT, and Mr. KRISTAL.

22*a*. Architectural Drawing. *Two hours.* Mr. TITCOMB.
24*a*. Architectural Drawing. *One hour.* Mr. TITCOMB.
25. Architectural Drawing (A) II. *Two hours.* Mr. TITCOMB.

SECOND SEMESTER

2. Free-Hand Drawing. Pencil, Pen and Ink. Sketching. *Two hours.* (Elective.) Miss HUNT.
3. Free-Hand Drawing. (Advanced.) *Three hours.* (Elective.) Miss HUNT.

4. Descriptive Geometry. Recitations and Drawing. Twelve sections. *Four hours.* Mr. Fishleigh, Mr. Finch, Mr. Miller, Mr. Foster, Mr. Abbott, and Mr. Kristal.
5. Advanced Projections and Stereotomy. Three sections. *Four hours.* Professors Denison and Goulding, Mr. Finch, and Mr. Miller.

   Course 5 must be preceded by Course 4.
6a. Machine Drawing. Four sections. *Two hours.* Mr. Finch, Mr. Foster, Mr. Verner, and Mr. Kristal.

   Course 6a is the continuation of Course 6.
7. Water-Color Drawing. *Two hours.* (Elective.) Miss Hunt.
9a. Water-Color Drawing. Historic Ornament and Design (continued). *Three hours.* (Elective.) Miss Hunt.
10. Free-Hand Lettering. Two sections. *Two hours.* (Elective.) Mr. Bartlett and Mr. Kristal.
22b. Architectural Drawing. *One hour.* Mr. Titcomb.
24. Architectural Drawing (A) IV. *Two hours.* Mr. Titcomb.
26. Architectural Drawing. *Two hours.* Mr. Titcomb.

SHOP PRACTICE

All courses in shop practice are under the direction of Professor W. L. Miggett, Superintendent of Shops. Instruction is given in the various branches by special shop assistants.

The shop courses consist of actual practice in the shops, together with class-room recitations for which outside preparation is made from text-books and oral instruction. Courses 1 to 4 may be continued by advanced students as Courses 1a to 4a. Special arrangements are made for students who desire to take more advanced shop courses with a view to preparing themselves for teaching these subjects.

FIRST SEMESTER

1. Wood Shop and Forge Shop. Five sections. *Four hours.*
2. Pattern-making and Foundry. (Advanced.) Two sections. *Four hours.*
3. Machine Shop. Two sections. *Four hours.*

SECOND SEMESTER

1. Wood Shop and Forge Shop. Five sections. *Four hours.*
2. Pattern-making and Foundry. (Advanced.) Two sections. *Four hours.*
3. Machine Shop. Four sections. *Four hours.*
5. Instrument Making. *Two hours.*

SURVEYING

The course required for students in Civil Engineering covers a full academic year, and includes text-book work, lectures, recitations, and field practice. The methods of surveying and computing used in laying out work are explained in detail; each student is required to make plats, maps, and the necessary calculations from actual surveys; and instruction is given in the proper care, use, and adjustment of instruments. There is an ample and varied supply of instruments for the use of students.

During the first eight weeks of the summer vacation between the third and fourth year, the class goes to the Bogardus Engineering Camp as a field party. A survey is made for some line of communication, usually a railroad. In this connection good field and office records are required; profiles and maps are made; and the necessary computations, including those for earthwork quantities, are worked out. Hydrographic and other surveys are also made at this time.

BOTH SEMESTERS

1. Surveying. Lectures. Text-book, and Field Practice. *Three hours.* Professor Davis, and Assistant Professors Merrick and Rich.

   The field practice in Course 1 continues during favorable weather until Christmas.

2. Surveying. Continuation of Course 1. *Four hours.* Professor Davis, Assistant Professors Merrick and Rich, Mr. Schmutz, and Mr. Carey.

4. Use of Instruments. Three sections. *Two hours.* Professor Davis, Mr. Atwell, and Mr. Bailey.

5. Topographical Drawing. *Three hours.* Professor Davis, Mr. Schmutz, and Mr. Carey.

   Course 5 must be preceded by Course 4 or its equivalent.

6. Geodesy. Lectures. Reading. Writing. *Four hours.* (Elective.) Professor Davis.

CIVIL ENGINEERING

FIRST SEMESTER

1*a*. Structural Mechanics. Analytical and graphical statics. Stresses in roof and bridge trusses. Five sections. *Four hours.* Professors Greene and Tilden, Assistant Professors Griffith and Ellis, and Mr. Decker.

Course 1*a* must be preceded by Course 4E in Mathematics.

1*b*. Strength and Resistance of Materials. Elements of structural design. *Four hours.* Professors Greene and Tilden, and Assistant Professor Griffith.

1*c*. Same for Electrical and Marine Engineers. *Three hours.* Assistant Professor GRIFFITH.

Students must have completed Course 1*a* in Civil Engineering and Course 5*a* in Mathematics before electing Course 1*b* or 1*c*.

2. Theory and Analysis of Structures. Lectures and text. Three sections. *Four hours.* Professor GREENE, and Assistant Professors GRIFFITH and ELLIS.

Course 2 must be preceded by Courses 1*a* and 1*b*.

3. Structural Design. Computations and Draughting. Three sections. *Four hours.* Professor GREENE, and Assistant Professors GRIFFITH and ELLIS.

Course 3 must be preceded or accompanied by Course 2.

5. Hydraulics. Mechanics of Fluids and Hydraulic Motors. Lectures and text. Two sections. *Four hours.* Professor WILLIAMS and Assistant Professor PIERCE.

Course 5 must be preceded by Course 1*a* in Civil Engineering and preceded or accompanied by Course 5*a* in Mathematics, and Course 1*b* in Civil Engineering.

5*a*. Hydraulics. Review. *Two hours.* Assistant Professor PIERCE.

6. Municipal Engineering. Lectures and text. *Two hours.* Professor WILLIAMS and Assistant Professor RICH.

Course 6 must be preceded by Courses 1*a* and 1*b* and preceded or accompanied by Course 5.

10. Testing Materials. Lectures, computations and laboratory. Two sections. *Two hours.* Professor TILDEN.

Course 10 must be preceded by Courses 1*a* and 1*b*.

10*a*. Interpretation of Tests. Studies of investigations of engineering materials. *Two, three,* or *four hours.* Professor TILDEN.

Course 10*a* must be preceded or accompanied by Course 10.

SECOND SEMESTER

1*a*. Structural Mechanics. Analytical and graphical statics. Stresses in roof and bridge trusses. Five sections. *Four hours.* Professor TILDEN, Assistant Professors GRIFFITH and ELLIS, and Mr. DECKER.

Course 1*a* must be preceded by Course 4E in Mathematics.

1*b*. Strength and Resistance of Materials. Elements of structural design. *Four hours.* Professors GREENE and TILDEN.

1*c*. Same for Electrical and Marine Engineers. *Three hours.* Professor GREENE.

Students must have completed Course 1*a* in Civil Engineering and Course 5*a* in Mathematics before electing Course 1*b* or 1*c*.

4. Engineering Constructions. Lectures and text. *Two hours.* Professors WILLIAMS, GREENE, and TILDEN, and Assistant Professors GRIFFITH and ELLIS.

Course 4 must be preceded by Course 2.

5. Hydraulics. Mechanics of Fluids and Hydraulic Motors. Lectures and text. Three sections. *Four hours.* Professor Williams, and Assistant Professors Griffith, Rich, and Pierce.

Course 5 must be preceded by Course 1 in Civil Engineering and preceded or accompanied by Course 6 in Mathematics and Course 1*b* in Civil Engineering.

5*a*. Hydraulics. Review. *Two hours.* Assistant Professor Pierce.

7. Water Supply Engineering. Lectures and texts. *Two hours.* Professor Williams, and Assistant Professor Rich.

Course 7 must be preceded by Courses 1, 5, and 6.

8. Experimental Hydraulics. Lectures, computations and laboratory. *Three hours.* Professor Williams.

Course 8 must be preceded by Course 5.

9. Advanced Structural Design. Lectures, computations and drawing. *Three hours.* Professor Greene.

Course 9 must be preceded by Course 3 and preceded or accompanied by Course 4.

10. Testing Materials. Lectures, computations and laboratory. *Two hours.* Professor Tilden.

Course 10 must be preceded by Course 1.

10*a*. Interpretation of Tests. Studies and discussion of investigative tests on engineering materials. Two, three, or four times a week. *Two, three,* or *four hours.*

14. Strength and Resistance of Materials; advanced course. Special investigations and reports. *Credit to be arranged.*

Course 14 must be preceded by Courses 1*a*, 1*b*, and 10.

15. Engineering Design. Problems in general engineering constructions. *Four hours.* Professor Greene, Assistant Professor Griffith, and Mr. Decker.

Course 15 must be preceded by Course 3.

MECHANICAL ENGINEERING

FIRST SEMESTER

1. Principles of Mechanism. Eight sections. *Four hours.* Professors Denison and Goulding, Mr. Bartlett, Mr. Fishleigh, Mr. Finch, Mr. Foster, and Mr. Verner.

Course 1 must be preceded by Course 1E in mathematics and by Course 4 in drawing.

2. Machine Drawing. Three sections. *Two hours.* Mr. Noble, Mr. Fessenden, and Mr. Mudge.

3. Steam Engines and Other Heat Engines. Three sections. *Four hours.* Professor Anderson, Assistant Professor Bursley, and Mr. Mudge.

Course 3 must be preceded by Courses 1 and 2 in physics and by Course 4E in mathematics.

4*a*. Design of Machine Details. *Two hours.* Assistant Professor Knight and Mr. Noble.

Course 4*a* must be preceded by Course 2 and by Course 1*a* in civil engineering.

4*b*. Design of Machine Details. *Two hours.* For students in electrical engineering only. Mr. EMSWILER.

Course 4*b* must be preceded by Course 6*a* in drawing.

5. Thermodynamics. *Three hours.* Professor ANDERSON.

Course 5 must be preceded by Course 3.

6. Theory of Machine Design. Two sections. *Four hours.* Assistant Professor KNIGHT and Mr. EMSWILER.

Course 6 must be preceded by Course 1*a* in civil engineering and preceded or accompanied by Course 1*b* in civil engineering.

7. Steam Laboratory. Calibration of Instruments and Measurement of Power. One section. *Two hours.* Assistant Professors MOYER and BURSLEY.

Course 7 must be preceded by Course 3.

8. Machine Design. Hoisting Machinery. Two sections. *Three hours.* Assistant Professors KNIGHT and ZOWSKI.

Course 8 must be preceded by Course 4 and preceded or accompanied by Course 6.

9. Steam Laboratory. Testing of Heat Engines and Boilers. Three sections. *Three hours.* Assistant Professors MOYER and BURSLEY, and Mr. MUDGE.

Course 9 must be preceded by Course 7.

10. Machine Design. Boilers and Engines. *Three hours.* Mr. EMSWILER and Mr. FESSENDEN.

Course 10 must be preceded by Course 3 and Courses 1*a* and 1*b* in civil engineering.

13. Heating and Ventilation. *Two hours.* Professor ALLEN.

Course 13 must be preceded by Course 3.

16. Valve Gears. Five sections. *Two hours.* Assistant Professor ZOWSKI and Mr. FESSENDEN.

17. Machine Design. Water Turbines. *Three hours.* Assistant Professor ZOWSKI.

22. Reciprocating Pumps and Air Compressors. *Three hours.* Assistant Professor ZOWSKI.

23. Machine Design. Pumping Machinery and Air Compressors. *Three hours.* Assistant Professor ZOWSKI.

24. Prime Movers. *Three hours.* Professor ALLEN.

This course should be preceded by Courses 1 and 2 in physics.

25. Machine Design, Machine Tools. *Three hours.* Professor MIGGETT.

29. Higher Problems in the Kinematics of Machines. Lectures, reference reading, drawing and original work. *Two hours.* Professor DENISON and Mr. BARTLETT.

SECOND SEMESTER

1. Principles of Mechanism. Three sections. *Four hours.* Professors DENISON and GOULDING, and Mr. BARTLETT.

Course 1 must be preceded by Course 1 in mathematics and by Course 4 in drawing.

2. Machine Design. Three sections. Two hours. Mr. Noble and Mr. Mudge.

3. Steam Engines and Other Heat Engines. Six sections. *Four hours.* Professors Allen and Anderson, Assistant Professor Bursley, and Mr. Mudge.

   Course 3 must be preceded by Courses 1E and 2E in physics and by Course 4E in mathematics.

4a. Design of Machine Details. *Two hours.* Mr. Noble and Mr. Emswiler.

   Course 4*a* must be preceded by Course 2 and by Course 1*a* in civil engineering.

4b. Design of Machine Details. *Two hours.* For students in electrical engineering only. Mr. Fessenden and Mr. Verner.

   Course 4*b* must be preceded by Course 6*a* in drawing.

5. Thermodynamics. Two sections. *Three hours.* Professor Anderson and Assistant Professor Bursley.

   Course 5 must be preceded by Course 3.

6. Theory of Machine Design. *Four hours.* Mr. Fessenden and Mr. Emswiler.

   Course 6 must be preceded by Course 1*a* and preceded or accompanied by Course 1*b* in civil engineering.

7. Steam Laboratory. Calibration of Instruments and Measurement of Power. Four sections. *Two hours.* Assistant Professors Moyer and Bursley.

   Course 7 must be preceded by Course 3.

8. Machine Design. Hoisting Machinery. *Three hours.* Assistant Professor Zowski and Mr. Emswiler.

   Course 8 must be preceded by Course 4 and preceded or accompanied by Course 6.

9. Steam Laboratory. Testing of Heat Engines and Boilers. Three sections. *Three hours.* Assistant Professor Bursley and Mr. Mudge.

   Course 9 must be preceded by Course 7.

10. Machine Design. Boilers and Engines. *Three hours.* Mr. Fessenden and Mr. Mudge.

    Course 10 must be preceded by Course 3 and Courses 1*a* and 1*b* in civil engineering.

11. Gas Engines and Gas Producers. *Two hours.* Professor Allen.

12. Power Plants. Power Transmission. *Two hours.* Professor Allen.

    Courses 12 must be preceded by Course 3 and Course 5 in civil engineering.

15. Hydraulic Machinery. Water Turbines. *Three hours.* Assistant Professor Zowski.

    Must be preceded by Course 5 in civil engineering.

16. Valve Gears. *Two hours.* Mr. Fessenden and Mr. Verner.
Must be preceded by Course 1 and preceded or accompanied by Course 3.

17. Machine Design. Water Turbines. *Three hours.* Assistant Professor Zowski.
Must be preceded or accompanied by Courses 6 and 15.

18. Steam Turbines. *Two hours.* Mr. Emswiler.
Course 18 must be preceded by Course 5.

21. Design of Power Plants. *Two hours.* Professor Anderson.
Course 21 must be preceded or accompanied by Course 12.

22. Hydraulic Machinery. Pumps and Pumping Engines. Assistant Professor Zowski.
Must be preceded or accompanied by Course 5 in civil engineering.

23. Machine Design. Pumps and Pumping Engines. Assistant Professor Zowski.
Must be preceded or accompanied by Courses 6 and 22.

26. Public Utilities. *One hour.* Professor Cooley and non-resident lecturers.
Open only to graduate students and seniors.

27. Refrigeration. *Two hours.* Professor Allen.

28. Steam Laboratory (advanced). *Two hours.* Assistant Professor Moyer.

29. Higher Problems in the Kinematics of Machines. Lectures, reference reading, drawing and original work. *Two hours.* Professor Denison and Mr. Bartlett.

ELECTRICAL ENGINEERING

FIRST SEMESTER

1. Dynamo-Electric Machinery. Lectures, recitations and laboratory work. Ten sections. *Four hours.* Professor Patterson, Assistant Professors Higbie and Parker, and Mr. Tanner.
Course 1 must be preceded by Courses 1E and 2E in physics. It is intended for students not candidates for the degree in electrical engineering.

2. Direct Current Machinery. Lectures, recitations and laboratory work. *Four hours.* Professor Patterson and Assistant Professor Higbie.
Course 2 must be preceded by Course 5 in physics.

3. Alternating Current Generators and Transformers. Lectures, recitations and laboratory work. Four sections. *Four hours.* Professors Patterson and Bailey, and Assistant Professor Higbie.
Course 3 must be preceded by Course 2.

5. Design of Electrical Machinery and Appliances. Lectures, recitations and drawing. *Four hours.* Professor Bailey.
Course 5 must be preceded by Course 1 or 2.

7. Photometry and Electric Lamps. Lectures, recitations and laboratory work. *One hour.* Professor Patterson.

Course 7 must be preceded by Course 1 or 2.

9. Storage Battery Installation. Lectures and laboratory work. *One hour.* Professor Bailey.

11. Electric Generating Stations and Sub-Stations. Lectures. *Two hours.* Mr. Denman.

Course 11 must be preceded by Course 1 or Course 2.

13. Telephone, Telegraph, Fire Alarm, Railway Signal, and Related Apparatus. Lectures and recitations. Two sections. *Two hours.* Assistant Professor Parker.

Course 13 must be preceded or accompanied by Course 1 or 2.

14. Telephone, Telegraph, Fire Alarm, Railway Signal, and Related Apparatus. Laboratory work. *Two hours.* Assistant Professor Parker.

Course 14 must be preceded or accompanied by Course 13.

SECOND SEMESTER

1. Dynamo-Electric Machinery. Lectures, recitations and laboratory work. Five sections. *Four hours.* Professor Patterson, Assistant Professor Higbie, and Mr. McOmber.

Course 1 must be preceded by Courses 1E and 2E in physics. It is intended for students not candidates for the degree in electrical engineering.

2. Direct Current Machinery. Lectures, recitations and laboratory work. Two sections. *Four hours.* Professor Patterson, Assistant Professor Higbie and Mr. McOmber.

Course 2 must be preceded by Courses 1E, 2E, 3*b*, 4, and 5 in physics. It is required for candidates in electrical engineering.

3. Alternating Current Generators and Transformers. Lectures, recitations, and laboratory work. *Four hours.* Professor Patterson and Mr. McOmber.

4. Alternating Current Motors. Lectures, recitations and laboratory work. Three sections. *Two hours.* Professors Patterson and Bailey, and Assistant Professor Higbie.

Course 4 must be preceded by Course 1 or 3.

6. Design of Electrical Machinery and Appliances. Drawing. *Two hours.* Professor Bailey.

Course 6 must be preceded by Course 5, of which Course 6 is the continuation.

8. Electric Railways. Lectures and recitations. *Two hours.* Mr. Denman.

Course 8 must be preceded by Course 1 or 2.

10. Alternating Current Phenomena. Lectures and reading. *Two hours.* Professor Patterson.

12. Distribution of Electricity. Lectures. *Two hours.* Mr. J. C. Parker.

Course 12 must be preceded by Course 1 or 2.

13. Telephone, Telegraph, Fire Alarm, Railway Signal, and Related Apparatus. Lectures and recitations. Two sections. *Two hours.* Assistant Professor **Parker.**

Course 13 must be preceded or accompanied by Course 1 or 2.

15. Telephone, Telegraph, Fire Alarm, Railway Signal, and Related Apparatus. Laboratory work. *Two hours.* Assistant Professor **Parker.**

Course 15 must be preceded by Course 13.

16. Advanced Telephone Apparatus. *Two hours.* Assistant Professor **Parker.**

18. Research Work in Electrical Engineering. Under the direction of the faculty of this department.

CHEMICAL ENGINEERING

FIRST SEMESTER

1. Fuel and Refractory Material, Iron and Steel. Lectures and recitations. Five sections. *Two hours.* Professor **Campbell** and Mr. **Ware.**

Open to those who have completed Course 3*a* in chemistry.

2. Chemical Technology. Lectures, recitations and assigned reading. *Five hours.* Professor **White.**

Open to those who have completed Chemistry 3 or 3*b*, and Physics 2E.

9. Technical Examination of Gas and Fuel. *Two hours.* Professor **White.**

Open to those who have completed Chemistry 5 and by special permission to seniors who have completed Chemistry 3*a*.

10. Methods of Assaying Gold and Silver Ores. *Two hours.* Professor **White.**

Open to those who have completed Chemistry 28. A knowledge of mineralogy is desirable.

12. Chemical Technology. Laboratory work. *Credit, three to eight hours.* Professors **Campbell** and **White.**

Course 12 must be preceded by Course 2 and Chemistry 28, with Course 3 and Chemistry 7 in addition, if the subject involves organic chemistry.

SECOND SEMESTER

1. Fuel and Refractory Material, Iron and Steel. Lectures and recitations. Five sections. *Two hours.* Professor **Campbell** and Mr. **Ware.**

Open to those who have completed Course 3*a* in chemistry.

3. Chemical Technology of Carbon Compounds. Lectures, recitations and assigned readings. *Five hours.* Professor **White.**

Open to those who have completed Course 2 and Chemistry 7.

[7. Structure of Metals. Lectures and reading. *One hour.* Mr. ZIMMERSCHIED.
Open to those who have taken Course 1.
Omitted in 1909-1910.]

[8. Metallography. Two sections. *One hour.* Fee, $3. Mr. ZIMMERSCHIED.
Course 8 must be preceded or accompanied by Course 7.
Omitted in 1909-1910.]

9. Technical Examination of Gas and Fuel. Lectures and laboratory work. Two sections. *Two hours.* Fee, $5. Professor WHITE.
Open to those who have completed Chemistry 5 and by special permission to seniors who have completed Chemistry 3*a*.

10. Methods of Assaying Gold and Silver Ores. Laboratory work. *Two hours.* Mr. WARE.

12. Chemical Technology. Laboratory work. *Credit, three to eight hours.* Fee, $15 to $25. Professors CAMPBELL and WHITE.
Course 12 must be preceded by Course 2 and Chemistry 28, with Course 3 and Chemistry 7 in addition, if the subject involves chemistry.

NAVAL ARCHITECTURE AND MARINE ENGINEERING

FIRST SEMESTER

1. Naval Architecture. Structural Design. Lectures and recitations. *One hour.* Professor SADLER.

3. Naval Architecture. Strength of ships and preliminary design. *Two hours.* Professor SADLER.
Course 3 must be preceded or accompanied by Course 2.

5. Naval Architecture. Mould loft and structural drawing. *Two hours.* Assistant Professor BRAGG.

6. Naval Architecture. Ship drawing and design. *Three hours.* Professor SADLER and Assistant Professor BRAGG.

8. Marine Boilers. Lectures and recitations. *One hour.* Assistant Professor BRAGG.

9. Marine Engines. Lectures and recitations. Two sections. *Two hours.* Professor SADLER and Assistant Professor BRAGG.

10. Marine Engine and Boiler Drawing and Design. *Two hours.* Assistant Professor BRAGG.

SECOND SEMESTER

2. Naval Architecture. Ship calculation. Lectures and recitations. *Two hours.* Assistant Professor BRAGG.

4. Naval Architecture. Stability, resistance, and propulsion of ships. *Four hours.* Professor SADLER.

5. Naval Architecture. Mould loft and structural drawing. *Two hours.* Professor SADLER and Assistant Professor BRAGG.

7. Naval Architecture. Ship drawing and design. *Three hours.* Professor SADLER and Assistant Professor BRAGG.

9. Marine Engines. Lectures and recitations. Two sections. *Two hours.* Professor **Sadler** and Assistant Professor **Bragg.**
11. Marine Engine and Boiler Drawing and Design. *Two hours.* Assistant Professor **Bragg.**

BOTH SEMESTERS

Primarily for Graduates

12. Experimental Tank Work. *Two hours.* Professor **Sadler.**
13. Ship and Engine Specifications. *Two hours.* Professor **Sadler.**
14. Pumping and Ventilation. *One hour.* Professor **Sadler.**
15. Advanced Reading. *Three hours.* Professor **Sadler.**
16. Advanced Drawing. *Five hours.* Professor **Sadler.**

ARCHITECTURE

FIRST SEMESTER

1. Elementary Design. *Two hours.* Professor **Lorch** and Mr. **Titcomb.**
5. Architectural Design II. Problems in the planning and designing of buildings. *Four hours.* Professors **Lorch** and **Ash,** and Mr. **Titcomb.**
7. Architectural Design IV. Problems in the planning and designing of buildings. *Five hours.* Professor **Lorch.**
   Course 7 must be preceded by Courses 1, 4, 5, and 6.
11. History of Architecture; Ancient Architecture. Illustrated lectures, conferences, drawing exercises, and research. *Two hours.* Professor **Ash.**
13. History of Architecture; Medieval and Renaissance. Illustrated lectures, conferences, drawing exercises, and research. *Two hours.* Professor **Lorch.**
18. Architectural Composition. *One hour.* Professor **Lorch.**
21. Building Construction. Lectures, drawings, and visits to buildings. *Two hours.* Professor **Ash** and Mr. **Lentz.**
23. Building Construction II. Building materials and processes; working drawings. *Four hours.* Professor **Greene** and Assistant Professors **Griffith** and **Ellis.**
24. Building Sanitation. Lighting, Plumbing and Drainage. *One hour.* Professor **Lorch** and Mr. **Lentz.**

SECOND SEMESTER

4. Architectural Design I. Problems in the planning and designing of buildings. *Two hours.* Professor **Lorch** and Mr. **Titcomb.**
   Course 4 must be preceded by Courses 1 and 2.
6. Architectural Design III. Problems in the planning and designing of buildings. *Four hours.* Professor **Lorch** and Mr. **Titcomb.**
   Course 6 must be preceded by Courses 1, 4, and 5.

8. Architectural Design (A) V. Problems in the planning and designing of buildings. *Six hours.* Professor LORCH.

   Course 8 must be preceded by Courses 1, 4, 5, 6, and 7.

9. Architectural Design. Problems in the planning and designing of buildings. *Two hours.* Professor ASH.

12. History of Architecture; Medieval Architecture. Illustrated lectures, conferences, drawing exercises, and research. *Two hours.* Professor ASH.

14. History of Architecture; Renaissance and Modern. Illustrated lectures, conferences, drawing exercises, and research. *Two hours.* Professor ASH.

22. Building Construction I. Building materials and processes; working drawings. *Two hours.* Professor ASH and Mr. LENTZ.

23. Advanced Building Construction. *Four hours.* Professor GREENE.

CLASSICAL ART AND ARCHAEOLOGY

For students in Architecture and Architectural Engineering.

FIRST SEMESTER

1. History of Greek Art from the Beginning to the Roman Period. *Three hours.* Professor D'OOGE.

   This course is open to all students who have completed the first year, irrespective of the study of Greek. Gardner's *Handbook of Greek Sculpture* and Tarbell's *History of Greek Art* will be made the basis of a more general study. Illustrated with stereopticon.

SECOND SEMESTER

2*a*. Roman Art. Elements of Roman Archæology; sculpture and painting in the Roman period. Illustrated lectures. *Three hours.* Professor KELSEY.

PHILOSOPHY

1. Philosophical Introduction. *Three hours.* First semester only. Professor WENLEY.

3. The Fundamental Conceptions of Modern Science in Their Development and Philosophical Implications. *Two hours.* First semester only. Dr. EMERSON.

LAW

1. The Formation of Contracts. *Two hours.* Second semester only. Professor KNOWLTON.

SEQUENCE OF STUDIES

The work of the first year in the four-year course is the same for all regular students. At the end of the first year, the student makes his choice to continue in the civil engineering, the mechanical engineering, the electrical engineering, the chemical engineering, naval architecture, marine engineering, architecture, or the architectural engineering course.

There is a limited opportunity for electives in some semesters, and credit obtained in advance at entrance may leave a place for substitutions. After the first year the student may take work to the amount of ***eighteen hours*** per week, as arranged by the classification committee; but ***he may wisely, in some cases, take a smaller number of hours,*** if he can in that way do more thorough work.

REQUIREMENTS FOR GRADUATION

THE DEGREE OF BACHELOR OF ENGINEERING

To earn the degree of Bachelor of Civil, Mechanical, Electrical, Chemical, Marine or Architectural Engineering, or Bachelor of Architecture, the student must secure ***one hundred and forty Hours of Credit**** in a prescribed course of study, as given below, eight hours of which must be earned in one summer session. The diploma given indicates the line of study pursued. A time limit is not fixed; but four years and one summer session are usually needed for the completion of the work required for the degree.

Bachelors of Arts, of this University, and graduates of any other reputable college, are excused from some portions of the general requirements, and are recommended for the same degree with the regular students upon completing the remaining requirements. This work can be done in two years, if the candidate has previously made considerable progress in mathematics and science. The culture imparted by classical or other liberal training will be found to have its uses for one engaged in engineering work, and previous discipline of the faculties in exact research will enable the professional student to master more easily the requirements of the course. All the time the student can devote to general studies before taking up specialties will be well spent.

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*For explanation of the term Hour of Credit, and for further information about the courses prescribed for graduation, see Engineering Announcement.

A choice of the several courses in engineering is made at the end of the first year.

An additional year of study, joined to a proper selection of electives, will enable a student to obtain the degree of Bachelor of Science in another course in Engineering.

HOURS OF WORK REQUIRED FOR THE DEGREE OF BACHELOR OF ENGINEERING IN THE FOUR-YEAR COURSES

SUBJECT.	Civ.	Mech.	Elect.	Chem.	Mar.	Arch.	Arch. Eng.
English	5	5	5	5	5	5	5
German and Romance Language	16	16	16	16	16	16	16
Mathematics	23	23	23	18	23	18	21
Physics	10	10	19	10	10	8	10
Chemistry	8	8	8	27	8	4	4
Geology	3	0	0	0	0	3	3
Mineralogy	2	0	0	0	0	0	0
Drawing	8	4	8	4	4	20	16
Shop Practice	4	12	8	4	4	4	4
Surveying	15	2	2	2	2	0	0
Civil Engineering	30	12	11	4	11	5	18
Mechanical Engineering	8	37	10	10	26	2	6
Electrical Engineering	4	4	25	4	4	0	4
Chemical Engineering	2	2	2	19	2	0	0
Marine Engineering	2	2	0	0	24	0	0
Architecture	0	0	0	0	0	43	29
Law	0	2	0	0	0	0	0
Philosophy	0	0	0	0	0	5	0
Political Economy	0	0	0	0	0	2	2
Elective	0	1	3	17	1	5	2
Total	140	140	140	140	140	140	140

THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

This course provides a broad general training in the arts and sciences, together with a sufficient amount of technical instruction to enable the students to discover whether or not they may profitably continue in Engineering, and to provide them with such training in surveying, draughting, analytical chemistry and shop work as will enable them to earn a fair compensation as draughtsmen, instrument men, analysts, inspectors of construction, etc.

The time required for the first degree, "Bachelor of Science in Engineering or Architecture," is four University years and one Summer Session of eight weeks, in which time the student is expected to complete 140 hours of University work, of which 106 are common to all seven courses. An hour of University work is defined as the equivalent of one hour per week of recitation for one-half of the college year. Three hours of time in the draughting room, laboratory or shops, count in general as one hour in recitation.

During the first three years the work of all the students is the same, except for two minor substitutions in the third year by students in Chemical Engineering and Architecture, so that except for these two branches it is not necessary for the student to determine which line to pursue until the end of the third year. At that time the work of the Summer Session is differentiated for the several ultimate degrees.

In the fourth year and preceding Summer Session, the technical subjects of Heat Engines, Electrical Machinery, Structural Mechanics, General Mechanism, Surveying, Chemical Analysis, and Elements of Architecture are introduced.

Two additional years of work are planned to follow this course for those who desire a broader foundation in cultural subjects, and at the same time a more thorough training in the technical branches. During the first of these a considerable portion of the time is devoted to the study of Law and Political Economy with particular reference to the requirements of general business, as well as of engineering; at the same time the more technical work of Strength and Resistance of Materials, Hydraulics, Machine Construction, and Metallurgy are taken up. This year's work leads to the degree of Master of Science in Engineering or Architecture.

In the sixth year the higher branches of professional training, design and original investigation, and the application of the theoretical principles to practical problems are presented, leading to the degree of Master of Civil Engineering, etc., etc.

The following table shows the number of hours common to the several courses considered in pairs, and is followed by tables showing work in the several subjects required for the several degrees, as well as the work of the old *four-year course,* and these by tables of the arrangement of work by years for the *six-year course.*

HOURS COMMON TO SEVERAL COURSES
EXCLUSIVE OF ELECTIVES

SUBJECT.	Civ.	Mech.	Elect.	Chem.	Mar.	Arch.	Geol.
Civil	210	147	140	133	147	147	153
Mechanical	147	210	154	143	167	131	138
Electrical	140	154	210	133	150	129	130
Marine	147	167	150	135	210	130	131
Architecture	147	131	129	131	130	210	131
Geology	153	138	130	137	131	127	210

HOURS OF WORK REQUIRED FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING OR ARCHITECTURE

SUBJECT.	Civ.	Mech.	Elect.	Chem.	Mar.	Arch.	Geol.
English	12	12	12	12	12	12	12
History	8	8	8	8	8	8	8
English, Philosophy	4	4	4	4	4	4	4
History, Language	or	or	or	or	or	or	or
Biology, Political Economy	5	5	5	5	5	5	5
German and Romance Language	20	20	20	20	20	20	20
Mathematics	20	20	20	18	20	20	20
Physics	10	10	10	10	10	10	10
Chemistry	8	8	8	18	8	8	8
Mineralogy	2	0	0	5	0	2	7
Geology	6	3	3	3	3	3	9
Drawing	10	6	6	6	6	16	8
Shop	0	12	8	0	8	0	0
Surveying	15	3	3	3	3	3	11
Civil Engineering	4	4	4	4	4	4	4
Mechanical Engineering	11	16	14	3	18	8	11
Electrical Engineering	8	8	12	8	8	4	4
Marine Engineering	0	0	0	0	7	0	0
Architecture	0	0	0	0	0	11	0
Electives	1	5	7	17	0	6	3
	140	140	140	140	140	140	140

HOURS OF WORK REQUIRED FOR THE DEGREE OF MASTER OF SCIENCE IN ENGINEERING OR ARCHITECTURE

SUBJECT.	Civ.	Mech.	Elect.	Chem.	Mar.	Arch.	Geol.
English	12	12	12	12	12	12	12
History	8	8	8	8	8	8	8
English, Philosophy	4	4	4	4	4	4	4
History, Language	or	or	or	or	or	or	or
Biology, Political Economy	5	5	5	5	5	5	5
Political Economy	3	3	0	5	0	0	0
Language—German and Romance	20	20	20	20	20	20	20
Mathematics	25	25	25	18	25	20	20

Physics	10	10	10	10	10	10	10
Chemistry	8	8	8	25	8	8	13
Mineralogy	2	0	0	5	0	2	11
Geology	6	3	3	3	3	3	18
Drawing	10	6	6	6	6	22	8
Shop	0	12	8	0	8	0	0
Surveying	15	3	3	3	3	3	15
Civil Engineering	12	12	12	4	12	8	18
Mechanical Engineering	11	26	14	5	25	8	11
Electrical Engineering	8	8	17	8	8	4	8
Chemical Engineering	2	2	2	12	2	2	0
Marine Engineering	0	0	0	0	17	0	0
Architectural Engineering	0	0	0	0	0	27	0
Law	16	5	3	6	2	5	5
Elective	2	7	19	20	1	8	3
	175	175	175	175	175	175	175

HOURS OF WORK REQUIRED FOR THE DEGREE OF MASTER OF ENGINEERING OR ARCHITECTURE

SUBJECT.	Civ.	Mech.	Elect.	Chem.	Mar.	Arch.	Geol.
English	12	12	12	12	12	12	12
History	8	8	8	8	8	8	8
English, Philosophy	4	4	4	4	4	4	4
History, Language	or	or	or	or	or	or	or
Biology, Political Economy	5	5	5	5	5	5	5
Philosophy	0	0	0	0	0	2	0
Political Economy	3	6	0	7	3	0	0
German and Romance Language	24	20	20	20	24	20	20
Mathematics	25	25	25	18	25	20	20
Physics	10	10	10	10	10	10	10
Chemistry	8	8	8	25	8	8	13
Astronomy	0	0	0	0	0	0	3
Mineralogy	2	0	0	5	0	2	17
Geology	6	3	3	3	3	3	24
Drawing	10	6	6	6	6	22	8
Shop	0	12	8	0	8	0	0
Surveying	15	3	3	3	3	3	18
Civil Engineering	32	12	12	4	12	20	14
Mechanical Engineering	11	38	18	14	29	10	11
Electrical Engineering	12	12	26	8	8	4	8
Chemical Engineering	2	2	2	22	2	2	2
Marine Engineering	2	2	0	0	29	0	0
Architectural Engineering	0	0	0	0	0	44	0
Law	16	6	3	6	4	5	5
Elective	7	20	41	34	11	10	12
	210	210	210	210	210	210	210

GRADUATE COURSES

THE DEGREE OF MASTER OF SCIENCE

A candidate for the degree of Master of Science in Engineering or in Architecture must have previously received the corresponding degree of Bachelor of Science from this Department, or, if graduated elsewhere, must satisfy the Faculty that he possesses equivalent attainments.

He must pursue, for at least one year, in residence at the University, advanced work upon a selected Major subject and shall present a satisfactory thesis which must be a contribution to engineering or scientific knowledge; the major and thesis shall be equivalent to at least twenty hours of work. In addition he shall select from approved minor subjects and carry on an amount of work equivalent to at least fifteen hours.

All work for this degree will be under the direction of a Committee, of which the professor in charge of the Major shall be Chairman, and the Committee will be composed of the members of the Faculty under whom the several subjects are taken up, and the candidate will be required to pass before the Committee an examination covering Major, Minors, and Thesis, previous to recommendation for the degree.

THE DEGREE OF CIVIL ENGINEER, MECHANICAL ENGINEER, ELECTRICAL ENGINEER, CHEMICAL ENGINEER, NAVAL ARCHITECT, AND MARINE ENGINEER

These advanced degrees will be conferred only upon persons who have proved their ability to plan and direct professional work or original investigation in applied science.

A candidate for any of these degrees must have received a Bachelor's or an equivalent degree from an approved College, at least five years before registration for the advanced degree. He must have been engaged in professional work, in responsible charge of the same for at least one year, and must present at the time of registration a detailed account of his professional experience to that time, which must be approved by a Committee composed of the heads of the departments of Engineering, of which Committee, the head of the department in which the degree is sought shall be Chairman.

He must have pursued before receiving the degree an amount of advanced study equivalent to at least one year's work at the University, which work must have been performed under the direction of the above committee of the Faculty, or be approved by them.

Those who have received the degree of Master of Science from this Department may be excused from part of the advanced study required, in case the work done for the master's degree is, in the opinion of the committee, acceptable towards a higher degree.

He must in addition to this present a satisfactory thesis giving evidence of his professional attainments and his fitness to receive the degree sought.

FELLOWSHIP IN GAS ENGINEERING

The Michigan Gas Association continues for the year 1909-1910 the support of the Fellowship in Gas Engineering which it has maintained since 1900-1901. The annual stipend is five hundred dollars. By the terms of the gift the course of study is in charge of the heads of the departments of instruction in chemical engineering and mechanical engineering. The holder of the fellowship for the current year is Benjamin Meyer Ferguson.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year. The Auditing Board has authority, under certain conditions, to remit the fee for special entrance examinations.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *forty-five dollars;* for all others, *fifty-five dollars.* The annual fee required of all graduates who are granted the privilege of pursuing studies for an advanced degree *in absentia,* is *ten dollars.*

Fee for Special Entrance Examination.—A fee of *five dollars* is required of all persons who present themselves for examination for admission at a date later than that announced in the Calendar.

Graduation Fee.—For all alike, *ten dollars.*

Laboratory Courses.—The required laboratory courses cost approximately as follows: *Shop Practice.*—In the mechanical and electrical engineering courses, *thirty dollars;* in the civil engineering course, *ten dollars. Physical Laboratory.*—A charge of *one dollar* is made for a course requiring one exercise a week during one semester, and at the same rate for the longer courses. *Mechanical Laboratory.*—The charge for each course is *five dollars. Chemical Laboratory.*—Students who take laboratory courses in chemistry are required to pay for the materials and apparatus consumed by them. The average cost for each course is about *ten dollars.* The fee required for any course has to be paid before the work of the course is begun.

The total amount of fees paid to the University during the whole four years' course, for matriculation, incidental expenses, materials used, and diploma, is, for Michigan students, from $240 to $280; and for others, from $295 to $335, varying more or less according to the student's actual laboratory expenses.

For additional information in regard to expenses, see pages 71 to 73.

Department of Medicine and Surgery

A special Announcement giving further information in regard to this department is published annually. For copies of this Announcement or for other information relating to the Department, address Dr. G. Carl Huber, Secretary of the Department of Medicine and Surgery, Ann Arbor, Michigan.

THE Department of Medicine and Surgery, for which provision was made in the legislative act by which the University was organized in 1837, was opened for students in 1850. The college year was lengthened from six to nine months in 1877. The course was lengthened to three years in 1880, and to four years in 1890.

The academic year extends from the Tuesday preceding the first Thursday in October to the last Thursday in June (October 4, 1910, to June 29, 1911). The lectures continue till the middle of June. The examinations are then begun, and concluded in time for the Commencement exercises.

For the summer session of this Department, see a subsequent chapter.

REQUIREMENTS FOR ADMISSION

The following will be admitted to the Department of Medicine and Surgery, as candidates for the Degree of Doctor of Medicine:

I. (a) Those who hold the Bachelor's Degree from the Department of Literature, Science, and the Arts of this University, and (b) Graduates of collegiate departments of other universities, and of approved colleges and scientific schools, holding the degrees of A.B., B.S., or PH.B., provided they show evidence of having an acquaintance with Latin, and a fair reading knowledge of German or French, and can present credentials showing that they have had a year of collegiate work in Biology (Zoology and Botany), Chemistry and Physics. Applicants holding post-graduate degrees, namely, A.M., M.S., Ph.D., and D.Sc., are subject to the same regulations.

II. Students registered on the combined course in collegiate and medical studies offered in this University, and who have followed this course as outlined, may enroll in the Department of Medicine and Surgery after having obtained 60 hours (B.S. and M.D. degrees) in the Department of Literature, Science, and the Arts, or 90 hours (A.B. and M.D. degrees), if they meet the other requirements. (See combined course in collegiate and medical studies).

III. Matriculate candidates for the bachelor's degree (a) of the Department of Literature, Science, and the Arts of this University, and (b) of the collegiate department of other universities, and of approved colleges and scientific schools, who can present evidence of being graduates of an approved high school, and in addition thereto can bring from the Dean of the Department of Literature, Science, and the Arts of this University a statement showing that they hold the equivalent of 60 hours of credit in that Department (two years of collegiate work), will be admitted in case their credentials show an acquaintance with Latin and a fair reading knowledge of ,either German or French, and a year of collegiate work in Biology (Zoology and Botany), Chemistry and Physics.

In order to meet the requirements in Latin the applicant should have studied Latin grammar, and should possess at least such knowledge of the language as may be acquired by reading four books of Cæsar or their equivalent.

The requirement in German or French is met by two years of school work, for one not born to the language.

Applicants who are deficient in both German and French, but who fulfill the requirements in other subjects, may be admitted conditionally on the understanding that the condition be removed before the beginning of the second year.

Applicants who do not meet in full the requirements in Physics, Chemistry and Biology may enter the Summer Session preceding or following their first year of residence, and thus make up their deficiency, but the requirements in these subjects must be met before the beginning of the second year.

COMBINED LITERARY AND MEDICAL COURSE

Students desiring to obtain the degrees of Bachelor of Arts in the Department of Literature, Science, and the Arts, and of Doctor of Medicine in the Department of Medicine and Surgery, may, by enrolling on the combined Literary and Medical course, shorten from eight years to seven the time required to earn the two degrees. This privilege is open only to students who during their first three years have maintained a uniform record of good scholarship. The work is under the direction of a Committee of five members representing the Department of Literature, Science, and the Arts and the Department of Medicine and Surgery. With the consent of the Committee in charge, a candidate for the degree of Bachelor of Arts, who has been a student in the Department of Literature, Science, and the Arts for at least one year, and has 90 or more hours to his credit, of which at least 30 hours have been earned in the Department of Literature, Science, and the Arts in this University, may enroll upon the combined course; that is, while continuing his registration in this Department he may also register in the Department of Medicine and Surgery, provided the work he has already completed includes a sufficient number of the courses enumerated below to enable him to complete within one year the specific requirements described in the following paragraphs.

All students desiring to enter upon the Combined Literary and Medical Course must, in May of the year preceding the double registration, file with the Registrar of the Department of Literature, Science, and the Arts, on a blank to be obtained from him, a petition to be granted that privilege.

When the student so registered in the two Departments has completed the first year of the Course in Medicine, and not less than 90 hours in the Department of Literature, Science, and the Arts, he will be recommended for the degree of Bachelor of Arts, provided his work has included the following courses:

Rhetoric, 6 hours, including Courses 1 and 2.
French and German, 16 hours of either one, and 8 hours of the other.
English, 6 hours.
Psychology, 6 hours.
Physics, 10 hours, including two hours of laboratory work.
Chemistry, General and Organic, 8 hours for students presenting Chemistry for entrance, otherwise 12 hours.
Physical Chemistry, 4 hours.
Biology, 8 hours.
Zoology, 6 hours.
Total, 78 or 82 hours.

Suggested electives: Latin or Elementary Greek, 8 hours; History, or Political Economy, or Philosophy, 8 hours; Qualitative Analysis, 4 hours; Organic Chemistry, 5 hours.

Students enrolling prior to September, 1913, who so desire, may obtain the degrees of Bachelor of Science and Doctor of Medicine in six years by complying with the requirements above set forth, except that the credit required from the Department of Literature, Science, and the Arts shall be 60 hours, instead of 90, and shall include the following courses:

Rhetoric, 6 hours, including Courses 1 and 2.
French or German, 16 hours.
Physics, 8 hours.

Chemistry, General and Organic, 8 hours for students presenting Chemistry for entrance, otherwise 12 hours.
Biology, 8 hours.
Total, 46 or 50 hours.

Electives are suggested from the courses before mentioned.

In order to meet exceptional cases, the Committee shall have power to adjust the foregoing requirements by allowing substantial equivalents.

ADMISSION TO ADVANCED STANDING

The applicant must have studied as a matriculated medical student, in an approved medical school for a period of time at least equal to that already spent by the class which he seeks to enter. He must present credentials showing that he meets in full the entrance requirements as herin set forth, and must furnish evidence showing that he has satisfactorily completed courses equivalent in amount and character to those given in this school, in the year or years preceding that to which he seeks admission, and must pass examinations at the beginning of the session in all the subjects that have already been pursued by the class which he desires to enter. Certificates of standing should be presented, but these cannot be accepted in place of these examinations.

COURSES OF INSTRUCTION

The regular course of instruction covers four years of nine months each. The first two years are devoted to the more fundamental scientific courses which serve as a basis for the technical and clinical studies which follow. Nearly the entire time of the first year is devoted to laboratory work. The forenoons of the remaining three years are devoted mainly to lectures and recitations, two or three each day; the afternoons to laboratory work, to clinical demonstration courses, and to clinics, four to five each day.

The following brief descriptions show the character and extent of the instruction given in the several branches during the current year, and indicate the order in which the different portions of the course are studied. Further details are given in the Special Announcement of the Department.

CHEMISTRY

1. General Chemistry. Lectures, demonstrations, recitations. Four times a week, first semester, first year. Professor Bigelow.

2. Organic Chemistry. Lectures, demonstrations, recitations. Four times a week, second semester, first year. Professor Gomberg.
3. Laboratory Work. From 10 to 12, five times a week for a period of twelve weeks, first year. Mr. Cole.

PHYSICS

For the work in Physics a knowledge of plane trigonometry is indispensable.

1. Mechanics, Sound, Light. Lectures, demonstrations, recitations. Five times a week, first semester, first year. Assistant Professor Henderson.

ANATOMY

1. Systematic Course in Anatomy of the Extremities. The course is repeated in periods of about eight weeks each. October to December, December to February, February to April. Mornings, 8 to 12. Professor Streeter and assistants.
2. Systematic Course in Anatomy of the Abdomen and Pelvis. Hours and instructor same as for Course 1.
3. Systematic Course in Anatomy of the Head, Neck and Thorax. Hours and instructor the same as for Courses 1 and 2.
4. Conferences in Anatomy. Wednesday, Thursday and Friday. October to April, 8 to 9. Professor Streeter.
5. Regional and Topographic Anatomy. Six weeks. April to June, 9 to 12. Mr. Loomis.
6. Surgical Anatomy. Second semester. One hour. Dr. Darling.
7. Laboratory Course in Anatomy for Dental Students. Twelve weeks. December to March, daily from 2 to 5. Dr. McCotter and assistants.
8. Descriptive Anatomy for Dental Students. Twelve weeks. December to March, daily from 1 to 2. Dr. McCotter.
9. Comparative Anatomy of the Nervous System and Special Senses. Hour to be arranged with instructor. Professor Streeter.
10. Original Investigation. Professor Streeter.

HISTOLOGY AND EMBRYOLOGY

1. Embryology, Histogenesis, General Histology, Organology, and Anatomy of the Special Sense Organs and Nervous System. Daily from 1 to 5. October to March. Professor Huber, Dr. DeWitt and assistants.

1*a*. General Embryology, General Histology and Histogenesis and Structure of the Elementary Tissues. Six weeks.

1*b*. Organology. Six weeks.

1*c*. Gross and Minute Anatomy of the Central Nervous System and Organs of Special Sense. Eight weeks.

2. Lectures, Recitations and Laboratory Work in Histology for Dental Students. Twelve weeks. From March to June. Daily from 9 to 12. Professor HUBER, Dr. DEWITT and assistants.

3. Methods of Vertebrate Histology and Embryology. Hours arranged with instructors. Professor HUBER and Dr. DEWITT.

4. Mammalian Embryology. Hours arranged with instructor. Professor HUBER.

5. Research in Vertebrate Histology and Embryology and in Anatomy of the Central Nervous System and the Organs of Special Sense. Hours arranged with instructor. Professor HUBER.

HYGIENE, BACTERIOLOGY, AND PHYSIOLOGICAL CHEMISTRY

1. General Hygiene. Lectures. Three times a week, second semester, second year. Professor VAUGHAN.

2. General Bacteriology. Lectures and quizzes. Three times a week, first semester, second year. Professor NOVY.

3. Practical Bacteriology. Laboratory work and recitations. Afternoons for nine weeks, second year. Professor NOVY and Mr. SCHULE.

4. Advanced Bacteriology. Professor NOVY.

Course 4 must be preceded by Course 3. It is an optional course, and is open only to a limited number of students.

4*a*. The Pathogenic Protozoa. Continuation of Course 4. Professor NOVY.

5. Water Analysis. Chemical, microscopical, and bacteriological study of drinking water. Three times a week, either semester, second year. Mr. BUZZELL.

6. Food Analysis. Chemical and bacteriological examination of food. Professor VAUGHAN and Mr. HALEY.

Course 6 is open only to students specially qualified for the work.

7. Research Work on Hygienic Problems. Professors VAUGHAN and NOVY.

Course 7 is open only to students specially qualified for the work.

8. Physiological Chemistry. Lectures. Three times a week, first semester, second year. Professor VAUGHAN.

9. Physiological Chemistry. Laboratory work and recitations. Afternoons for nine weeks, second year. Professor NOVY and Mr. FORSYTHE.

10. Advanced Physiological Chemistry. Afternoons for nine weeks. Professor NOVY and Mr. FORSYTHE.

Course 10 is an optional course.

11. The Administration of Health Laws. Professor VAUGHAN.

PHYSIOLOGY

1. Physiology. Lectures, demonstrations, recitations. Four times a week, second semester, first year. Professor LOMBARD.
2. Physiology. Continuation of Course 1. Lectures, demonstrations, recitations. Five times a week, first semester, second year. Professor LOMBARD.
3. Practical Physiology. Laboratory work. Afternoons for nine weeks, second year. Professor LOMBARD and assistants.
4. Research Work in Physiology. Professor LOMBARD.

Course 4 is open only to students who have completed Courses 1, 2, and 3, or an equivalent amount of work.

PATHOLOGY

1. General Pathology. Text-book: Ziegler's *General Pathology*. Collateral reading. Four times a week, second semester, second year. Professor WARTHIN.
2. General Pathology. Laboratory work. Afternoons for nine weeks, third year. Professor WARTHIN and Dr. MORSE.

2a. Journal Club. Third year. Professor WARTHIN.

Course *2a* is elective, and is open only to students who receive special permission.

3. Gross Pathology. Gross pathological anatomy. Twice a week, third year, in addition to time taken for clinical autopsies. Professor WARTHIN.
4. Autopsies. Professor WARTHIN.
5. Pathology of the Female Genito-Urinary Organs. Elective. Professor WARTHIN and Dr. WOOD.
6. Pathological Physiology. Professor WARTHIN.
7. Graduate Courses. Professor WARTHIN.

PHARMACOLOGY AND THERAPEUTICS

1. Pharmacology. Lectures, demonstrations, recitations. Three times a week, second semester, second year. Professor EDMUNDS.
2. Pharmacology. Lectures, demonstrations, recitations. Three times a week, first semester, third year. Professor EDMUNDS.

2a. Pharmacology and Therapeutics. Two times a week, second semester, third year. Professor EDMUNDS.

3. Preparation of Medicine and Prescription Writing. Once a week, both semesters, third year. Professor EDMUNDS and Dr. ROTH.
4. Experimental Pharmacology. Second semester, second year. Professor EDMUNDS and Dr. ROTH.
5. General Therapeutics. Two times a week, first and second semester, fourth year. Dr. MARSHALL.
6. Research Work in Pharmacology. Third and fourth years. Professor EDMUNDS.

SURGERY

1. Principles of Surgery. Lectures, recitations, and text-book. Twice a week, third year. Professor Nancrede and Dr. Waldron.
2. Diagnostic Clinic. Once a week, second semester, third year. Professor Nancrede.
3. Demonstration Course in Operative Surgery. Third year. Dr. Georg.
4. Special Surgery. Lectures and recitations. Three times a week, fourth year. Professors Nancrede, Darling, and Loree, Dr. Waldron, and Dr. Kollig.
5. Surgical Clinics. Fourth year. Professors Nancrede, Darling, Loree, and assistants.
6. Ward Classes. Fourth year. Professors Nancrede, Darling, and Loree, and Dr. Waldron.

INTERNAL MEDICINE AND DISEASES OF CHILDREN

1. Lectures and Recitations; Clinics. Five times a week, third year. Professor Hewlett and Dr. Van Zwaluwenburg.
2. Diagnostic Clinic. Once a week, third year. Professor Hewlett.
3. Auscultation and Percussion and Clinical Microscopy. Practical work and reading. Every afternoon, nine weeks. Third year. Dr. Van Zwaluwenburg.
4. Ward Class. Visits to the medical wards of the University Hospital. Fourth year. Professor Hewlett and Dr. Van Zwaluwenburg.
5. Case Taking. Patients are assigned to members of the class, who take the history, work out the present condition, and write the results, with differential diagnosis, prognosis, and plan of treatment. Fourth year. Professor Hewlett and assistants.
6. Clinical Lecture and Conference. Twice a week, fourth year. Professor Hewlett.
7. Recitations on Diseases not often seen in the Clinic. Once a week, fourth year. Dr. Van Zwaluwenburg.
8. Diseases of Infancy and Childhood. Lectures, recitations, and clinical instruction. Fourth year. Professor Cowie.

DISEASES OF THE MIND AND NERVOUS SYSTEM

1. For third-year students. Twelve exercises, each of two hours. Laboratory work in the pathological anatomy and physiology of the nervous system. Professor Barrett.
2. Lecture and Recitation Course. One hour each week throughout the year. For students of the fourth year. Professor Camp.

3. Clinical Lecture. Two hours each week throughout the year. Professor CAMP.
4. Psychiatry. A clinical lecture course given one hour each week throughout the year. Professor BARRETT.
5. Ward Class. One hour daily for the fourth-year class. Professor CAMP.

OPTIONAL COURSES

6. Laboratory Work in Neural Pathology. Professor BARRETT.
7. Laboratory Work in Experimental Psychology. Professors BARRETT and PILLSBURY.
8. Roentgenology. Lectures and demonstrations on the use of the Roentgen rays in therapeutics and diagnosis. Mr. WILLEY.

OPHTHALMOLOGY

1. Lectures and Recitations. Once a week, first semester, fourth year. Professor PARKER.
2. Clinical Course. Twice a week, fourth year. Professor PARKER.
3. Demonstration Course. Twice a week, for six weeks, third year. Dr. STEVENS.

OTO-LARYNGOLOGY

1. Lectures and Recitations. Once a week, first semester, fourth year. Professor CANFIELD.
2. Clinical Course. Once a week, fourth year. Professor CANFIELD.
3. Demonstration Course. Twice a week, for six weeks, third year. Professor CANFIELD and Dr. CUSHMAN.

OBSTETRICS AND GYNECOLOGY

1. Theory of Obstetrics. Lectures, recitations, clinical conferences. Two times a week, first and second semesters, third year. Professor PETERSON.
2. Demonstration Course in Obstetrics. Three times a week, for six weeks, third year. Dr. WOOD.
3. Obstetrics. Clinical Lecture and Conference. One hour a week, fourth year. Professor PETERSON.
4. Practical Obstetrics. Small sections. Fourth year. Drs. KAMPERMAN and WOOD.
5. Gynecology. Diagnostic Clinic and Ward Class. One hour a day for six weeks. Drs. KAMPERMAN and WOOD.
6. Gynecology. Lectures, recitations. Two times a week, fourth year. Professor PETERSON.
7. Gynecologic Clinics. Twice a week, fourth year. Professor PETERSON and assistants.

DERMATOLOGY AND SYPHILOLOGY

1. Lectures, recitations, clinics, and clinical conferences. One and one-half hours a week,. fourth year. Professor W. F. Breakey and Dr. J. F. Breakey.

MEDICAL JURISPRUDENCE AND TOXICOLOGY

1. Lectures from the legal standpoint. Second semester, fourth year. Professor Hutchins.
2. Lectures from the medical standpoint. Second semester, fourth year. Professor Vaughan.

BEDSIDE AND DISPENSARY INSTRUCTION

Senior students are given charge of patients, and are required to make diagnosis, prescribe, dress wounds, and perform minor operations under the direction of the professor in charge. A lying-in ward furnishes obstetrical cases, which are attended by the senior students in rotation.

RULES CONCERNING EXAMINATIONS

1. Examinations (either written or oral, or both) will be held at the close of each course or semester. The result of each examination must be reported in writing and within ten days to the Secretary of the Faculty by the professor in charge.

2. A student may be marked Passed, Incomplete, Conditioned, Absent, or Not Passed. A student reported Incomplete may apply for examination or re-examination in the same subject at the close of the next course or semester or at a time set by the professor in charge, provided he has completed the work of the course. A student reported as Conditioned can apply for re-examination in the same subject at the close of the next course or semester, or at the next officially announced time for the removal of conditions. Examinations for the removal of conditions are held during the first week of the session and immediately after the Christmas and spring vacations. A student reported as Absent may at the discretion of the professor in charge be given a special examination or comply with the rule governing the removal of conditions. A student reported as Not Passed cannot apply for re-examination until he has again taken the course in which he has failed.

RULES GOVERNING THE ADVANCEMENT AND CLASSIFICATION OF STUDENTS

1. No student who carries two or more conditions or re-conditions in the lecture or recitation work of the preceding year is permitted to carry the full lecture or recitation work of any one year after the fall examinations for the removal of conditions. The lecture or recitation work of such a student shall be reduced an equiv-

alent number of hours. A student having one condition or recondition in a lecture or recitation course after the fall examinations for removal of conditions shall have his work arranged by the Faculty.

2. A student conditioned in more than two lecture or recitation courses at the end of the first semester of any one year shall be placed on probation and his work reduced in proportion to the courses in which he failed or received conditions.

3. A student marked conditioned or incomplete in two laboratory courses shall not be assigned to further laboratory work until he has completed the laboratory courses in which he is marked incomplete or conditioned.

4. All conditions not passed within one year become "Not Passed."

5. Candidates for graduation failing in an examination will be allowed a re-examination before the entire Faculty, and failing in this, such students may again present themselves for examination at the expiration of a time which shall be determined by the Faculty, but which shall not be less than three months, nor longer than twelve months.

6. No student will be recommended for graduation until all his required work is completed and all his examinations passed.

INSTRUCTION FOR WOMEN

The course of instruction for women is in all respects the same as for men. It has been found in this and other of the better medical schools that both sexes may attend with propriety and at the same time the various laboratory courses, including Practical Anatomy, the lecture courses, as also the sectional and public clinics.

REQUIREMENTS FOR GRADUATION

To be dmitted to the degree of Doctor of Medicine, a student must be twenty-one years of age, and possess a good moral character. He must have completed the required courses in laboratory work, and have passed satisfactory examinations on all the required studies included in the full course of instruction. He must have pursued the study of medicine for a period of four years and have attended four full courses of medical lectures, the last two of which must have been in this Department.

Graduates of other reputable medical colleges, wishing to take a degree in this school, must regularly matriculate and do all work required in this school and not required in the school that has granted the diploma already held. The shortest term of residence for such graduates is one year. Graduates of other reputable medical schools may, however, without becoming candidates for a degree, pursue any of the graduate courses on the conditions stated below.

GRADUATE COURSES

The rapid development of medical science has necessitated the introduction of many new subjects into the curriculum, and this leads practitioners, who wish to keep abreast of the times, to return to the University in order to take special courses in the newer subjects. Moreover, at the present time some of the laboratory and demonstration courses mentioned in the preceding schedules are not given in many American Medical Colleges, and there have been frequent requests for admission to these courses from graduates of such schools. The frequency of these requests has led the Board of Regents to authorize the Faculty to admit medical graduates to any one or more of the regular courses when such graduates give evidence of their ability to profit by such instruction. In such cases the graduate student must pay ten dollars tuition for each course taken in addition to the ordinary laboratory expenses of such course.

Graduate work is also offered to students who have taken the full required courses.

FACILITIES FOR INSTRUCTION

There are ample collections of plates, photographs, models, specimens, preparations, apparatus, and instruments for illustrating the different studies embraced in the course. Additions to these collections are made from time to time, so that the members of the Faculty are able to adopt every method of illustration, to exhibit to the classes each year important improvements in the way of instruments and apparatus, and to show their application in the practice of medicine and surgery.

The following paragraphs may serve to indicate the extent of some of these collections and the character of the work done in the several laboratories. For further information in regard to the University museums, laboratories, libraries, and gymnasiums, see pages 43 to 60.

MUSEUM OF ANATOMY

The museums of the late Professors FORD and SAGER, including several thousand specimens, the result of many years' labor in collecting and preparing material intended to aid directly in teaching, are now the property of the University. Other preparations are constantly being added, and the museum now contains a valuable collection of bones, illustrating abnormal as well as normal conditions and the various changes that occur from infancy to old age; dissections, general and partial, of the vascular, nervous and muscular systems; series of sections made of frozen bodies; preparations illustrative of visceral and other anomalies; models of various organs and portions of the body in wax, papier-maché and plaster, and preparations and models illustrating the phenomena of human and comparative embryology and neurology.

The collection contained in the University Museum and the valuable osteological and odontological collections in the museum of the Dental Department are also open to the inspection of students.

MUSEUM OF PATHOLOGY

The laboratory of pathology contains a very complete and well-arranged pathological museum with many rare and valuable specimens, utilized for teaching purposes.

MUSEUM OF MATERIA MEDICA

The museum of materia medica consists of a fairly complete collection of the crude substances used in medicine, along with their principal preparations and active principles. In the arrangement of the drugs into groups convenient for study, importance is attached not to their origin but to their action. The museum is also provided with several works of reference for the use of students, and with a number of graphic registrations of the action of drugs. It is open to students of the junior class at such hours as they arrange with the instructor.

ANATOMICAL LABORATORY

The laboratory of anatomy is situated on the third floor of the new laboratory building and contains four well lighted and well ventilated dissecting rooms. A study room is provided for the convenience of the students, as also rooms for research and for special dissections, both comparative and human.

The laboratory possesses an osteological loan collection, and students are permitted to withdraw sets of bones illustrative of human osteology, which they may retain during their stay in the anatomical laboratory.

PHYSIOLOGICAL LABORATORY

The apartments provided for the physiological laboratory offer excellent facilities for practical work, whether of class instruction or of original investigation. A large and well-lighted room is appropriated chiefly to the use of undergraduate students, who perform under the direction of instructors most of the fundamental physiological experiments. The subjects commonly embraced in the practical course relate to the physiology of muscle and nerve, reflex action, circulation, respiration, and digestion. Smaller rooms are devoted to advanced work and original investigation. The laboratory has a good supply of apparatus, tools, etc., and is open daily for physiological experiment and research.

HISTOLOGICAL LABORATORY

The histological laboratory is on the second floor of the new medical building. It provides facilities for elementary and for advanced work in histology and histogenesis. There is a large room, accommodating forty-five students, for the elementary work in histology, and a smaller room, accommodating twenty students, for the elementary work in vertebrate embryology, together with storage rooms, a room in which a reference library is shelved, and private rooms for the use of the professor in charge and his staff. Suitable provision is made for students and graduates who desire to engage in the work of research. The laboratory equipment includes the apparatus and instruments needed for conducting the elementary work in histology and embryology, and for special research. An excellent collection of the Ziegler embryological models and of models of various glands and other minute anatomic structures made after the Born method of wax plate reconstruction and of corrosion preparations facilitates the work of instruction in the courses of histology and embryology. Every encouragement is given students and other persons of sufficient preliminary training to undertake the investigation of special problems.

PHARMACOLOGICAL LABORATORY

The pharmacological laboratory consists of two divisions, one for chemical, the other for experimental, pharmacology. Each division is supplied with apparatus and materials for original work in its branch of research, and any student or graduate receives every encouragement in the prosecution of such work. Among the apparatus recently provided may be mentioned Runne's kymographion with endless paper, two sets of revolving drums, artificial respiration apparatus driven by an electric motor, time markers and signals (electric and clock-work), batteries and secondary coils, centrifugal and "shaker" apparatus, balances, combustion furnaces, etc.

PATHOLOGICAL LABORATORY

The first floor on the east side of the new medical building and rooms in the basement are occupied by the pathological laboratory. Increased facilities are now afforded for graduate work and for work in research. A special room is also assigned to work in gynecological pathology.

The laboratory is supplied with microscopes, microtomes, paraffin ovens, and the other apparatus necessary in the study of pathologic histology. Each student is furnished with a locker containing a microscope with high and low powers, and is assigned to a table containing the necessary stains and reagents for practical work. These are furnished by the laboratory.

The supply of material for the study of pathologic histology is the result of collections made in the pathological institutes of Vienna and Dresden, and embraces almost every known pathologic condition. This collection gives ample material for the regular courses, and, in addition, offers special opportunities to the advanced student who may wish to pursue studies in certain lines of special pathology, as the pathology of the nervous system, genito-urinary tract, skin, etc. In addition, an abundant supply of fresh material comes from the clinics of the University Hospital, and this is utilized to the fullest extent in the teaching both of gross and of microscopic pathology. The laboratory is fitted with a Bausch and Lomb carbonic acid freezing microtome for use in the making of quick diagnoses and in the preparation of fresh material for class study.

HYGIENIC LABORATORY

The hygienic laboratory, established by a special appropriation of the legislature in 1887, and opened for work in January, 1889, is now in more commodious quarters in the new medical building. The facilities for original research have been enlarged, and from twenty to thirty students in research can be accommodated at once. Special rooms have been fitted up for the chemical, microscopical, and bacteriological study of foods and drinks, and for the prosecution of investigations in the chemistry and action of bacterial and other toxins. With the large incubating tanks now in use, it is possible to obtain a cellular substance of bacteria in large amounts.

PASTEUR INSTITUTE

The Pasteur Institute was established as a department of the hygienic laboratory in April, 1903. During the years 1903 to 1909 inclusive 628 cases of hydrophobia were treated at this institute. Residents of Michigan are treated at a charge of $25.00 and they must provide their own room and board. Persons from other states are charged one hundred dollars each for treatment. This institute gives opportunity for all the medical students to become practically familiar with the procedures necessary in the treatment of rabies.

BACTERIOLOGICAL LABORATORY

The west half of the second floor of the new medical building, containing about 7,000 square feet of floor space, is devoted to work in bacteriology. The two main laboratories contain seventy-eight desks, used by beginners and by advanced students. All the material required for the work is supplied, practically at cost, from a well-stocked dispensing room. Four rooms are devoted to the research work of the professor in charge, his assistants, and others qualified to carry on special studies. An incubating room, maintained at a constant temperature, is provided with individual drawers for the use of students. A similar room is reserved for the work in research. A cold room, including a spacious refrigerator, is cooled by means of a liquid-carbonic acid plant in such a way that the refrigeration can be kept at, or below, the freezing point, while the temperature of the room itself is maintained at about 60° F. A special compartment of 1,000 cubic feet capacity is reserved for experimental room disinfection. Provision is made for operative work on animals, cremation of infected material, sterilization of cages, etc. The well-lighted ground floor contains the store rooms and animal rooms and, in addition, a large room for microphotography. Gas, water, steam, and compressed air are supplied to the hoods in every work room. The laboratory is equipped with apparatus and instruments of the best make.

LABORATORY OF PHYSIOLOGICAL CHEMISTRY

This laboratory is in the west half of the third floor of the new medical building, and occupies about the same floor space as the bacteriological laboratory above described. The two rooms for the elementary and the advanced work are provided with sixty desks. An adjoining room is equipped with balances and microscopes. A preparation room contains, among other things, a distilling plant from which the water is taken in pipes to different parts of the building. Special rooms are provided for the instructor and for research. There are also well-equipped rooms for combustions, for optical work, and for gas analysis. In every room there are spacious hoods with fittings for steam and compressed air, in addition to gas and water. By an elaborate system of fan ventilation, the air in the laboratory is renewed every fifteen minutes. A small lecture room is in direct connection with the laboratory.

MUSEUM OF NATURAL HISTORY AND LIBRARY

Students in medicine have access to the botanical, zoological, and geological cabinets of the University, estimated to contain 255,000 specimens. The Medical Library contains 19,006 volumes and 410 pamphlets, exclusive of about 8,000 volumes treating of chemistry, pharmacy, and allied subjects of importance to medical students, included in the General Library, which contains 200,091 volumes, and is open to all students. A complete catalogue, arranged both by authors and by subjects, is accessible to readers. The leading medical periodicals of this country and of Europe, 327 in number, are taken and kept on file.

THE UNIVERSITY HOSPITAL

The University Hospital has the great advantage of being a hospital instituted primarily for teaching purposes, as all who are admitted are utilized freely for instruction. There are few hospitals where this is carried so far, the only restriction being the possibility of doing the patient harm. It may be well to emphasize this fact, as it has formed a distinct feature of this hospital since its beginning in 1869, when a large dwelling house, situated on the campus, was converted into a hospital, giving accommodation to about twenty patients, and in its further growth this feature has been maitained and developed. The hospital now embraces a central building erected in 1891, one office building, completed in 1896, a small isolation hospital added in 1898, a western building or pavilion acquired in 1901, a large addition, known as the "Palmer Ward," and a central heating plant, containing the laundries, completed in 1903, and a psychopathic hospital. An eye and ear ward, to accommodate forty patients, has just been completed. The hospital now has about 230 beds and contains two clinical amphitheaters, clinical laboratories, and a room for X-ray diagnostic work and X-ray therapy. A nurses' home, erected and completed in 1898, forms another of this group of buildings. The whole hospital is under the supervision of the Faculty and under the immediate direction of the hospital committee, consisting of the clinical teachers, who attend regularly upon the patients (each upon such cases as come regularly within his special department), and give the clinical instruction. Clinics are held every day during the college year and during the summer session for medical, surgical, gynecological, ophthalmological and venereal cases, at which time examinations are made, prescriptions given, and surgical operations performed in the presence of the classes or of sections thereof.

The patients are assigned to students who take the histories of the cases, make the physical examinations, the diagnosis and prognosis and suggest the line of treatment or operative procedure thought necessary, this under the direction of the professor in charge. The clinical laboratories under the direction of the departments of internal medicine, surgery, gynecology, and nervous diseases, all of which are especially equipped, furnish facilities for the scientific study of cases and are freely used by students as time and space permits. Stress is laid upon the value of ward and bedside instruction. The character of the hospital is such that this mode of instruction can be carried out more fully and more systematically than in many hospitals available for teaching purposes; this justifies the statement that the practical hospital work the students of this department are able to do is not yet given in many medical schools. Without detracting in any manner from the benefit which the patient may receive, it may be stated that much of the work of giving treatment, of dressing wounds and of giving other detailed attention to patients is carried out, under proper supervision, by senior students. For the treatment of diseases of the nervous system, the hospital is furnished with apparatus for generating all kinds of electrical currents. Attendants especially skilled in the application of electricity and massage are put in charge of such cases and are assisted by senior students who aid them in this work. A lying-in ward is established in which senior students are given an opportunity to attend cases of labor and become familiar with the duties of the lying-in room, under the immediate direction of the professor of obstetrics and his assistants. A large number of the cases submitted to the hospital are from a distance, and are of more than common interest, including numerous surgical and gynecological cases requiring major operation, many cases of disease of the lungs, heart, blood, digestive system and kidneys, and of the nervous system. The eye, ear, nose and throat service is large and replete with instructive cases. Patients with contagious disease are treated in the isolation hospital. The expenses to patients are only for their board, for unusual appliances or for special nursing, and for medicines, the services of the clinical teachers of the Faculty being rendered gratuitously to those made available for clinical instruction.

Patients who desire to enter the hospital are requested to write to J. Bradford Draper, Superintendent of the University Hospital, Ann Arbor, Michigan, to ascertain if there is room for their accommodation and to obtain a circular giving more fully the rules governing admission.

Training School for Nurses.—In connection with the hospital a training school for nurses has been established under the charge of a competent and experienced matron. The term of study and service extends through three years, at the expiration of which time those who have proved themselves worthy are granted a certificate of graduation. For further information in regard to the school, application may be made to the Superintendent of the hospital.

Psycopathic Hospital.—The Legislature of Michigan at a recent session, with a wise conception of the needs of those afflicted with mental disorders, and with a high appreciation of the advances of modern medical research, made provision for an addition to the University Hospital of a ward especially equipped for the care of a limited number of acute cases of insanity. This was done with the view of furnishing an opportunity for the more thorough study of the conditions attending insanity in its incipient stages, and with the hope that, by the aid of specialists in all branches of medicine and surgery, and the laboratory facilities available at the University Hospital, there might result the discovery of causes of these diseases at present unknown, and the development of methods of treatment that might increase the number of cures. The advantages to the medical student of such an addition to our hospital are apparent to all.

THE NEW MEDICAL BUILDING

The new medical building, completed in 1903, measures 175 by 145 feet, with an interior court, measuring 75 by 45 feet, and has a high basement and three upper stories. It provides accommodation for the departments of hygiene, bacteriology, physiological chemistry, pathology, anatomy, histology, and embryology. It contains, further, two large amphitheaters, two lecture rooms, a faculty room, and the offices of the Dean and the Secretary.

BEQUESTS

The Elizabeth H. Bates Bequest.—In the spring of 1898, Dr. Elizabeth H. Bates, of Port Chester, N. Y., died, leaving to the Medical Department an estate valued at about $140,000. Dr. Bates was in active practice for many years. She took a deep interest in the medical education of women, and the bequest may be looked upon as a recognition by her of the successful efforts made by the University of Michigan to give to women medical instruction equal to that furnished men. In accordance with a provision of the will the title of Bates Professor of Diseases of Women and Children has been given to Dr. Reuben Peterson. (The didactic and clinical work in connection with children's diseases will be in charge of the chair of Theory and Practice of Medicine, as heretofore.)

The Treadwell Bequest.—The late Mrs. Edward Treadwell, of Ann Arbor, bequeathed to University Hospital the sum of $2,000.

The Davis Bequest.—The late Mrs. Davis. of New Castle, Ind., made the University Hospital and the Ann Arbor Society for the Prevention of Cruelty to Animals her residuary legatees. The value of this bequest is about $2,000.

The Palmer Bequest.—Mrs. Palmer, widow of Professor Alonzo B. Palmer, formerly Dean of this Department, left the sum of thirty-five thousand dollars to the Hospital, and the "Palmer Ward" has been erected and equipped as a memorial to this distinguished pioneer in American medicine.

TEXT-BOOKS AND BOOKS OF REFERENCE

Lists of text-books and books of reference recommended are given in the special Announcement of the department.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance, and no student can enter upon his work until after such payment. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *forty-five dollars;* for all others, *fifty-five dollars.*

Library Fee.—Paid annually, for all alike, *two dollars.*

Graduation Fee.—For all alike, *ten dollars.*

Laboratory and Demonstration Courses.—The required laboratory and demonstration courses cost approximately as follows:

Anatomy	$21 00
Chemistry	15 00
Bacteriology	15 00
Physiological Chemistry	15 00
Histology	10 00
Physiology	5 00
Pharmacology	5 00
Pathology	10 00
Operative Surgery	10 00
Demonstration Course in Medicine	10 00
" " " Obstetrics	10 00
" " " Nervous Diseases	10 00
Demonstration Courses in Ophthalmology, Otology, Rhinology, and Laryngology	10 00

A deposit of the amount indicated in each case is required before the work of the course is begun.

Graduate Courses.—A fee of *ten dollars* is charged to graduate students for each course taken, in addition to the ordinary laboratory expenses of the course.

The total amount of fees paid to the University during the whole four years' course for matriculation, incidental expenses, materials used, and graduation is, for Michigan students, about $350.00, and for all others, about $400.00, varying a little with the students' actual laboratory expenses.

For additional information in regard to expenses, see pages 71 to 73.

Department of Law

A special Announcement giving further information in regard to this department is published annually. For copies of this Announcement, or for other information relating to this department, address Professor H. B. Hutchins, Dean of the Department of Law, Ann Arbor, Michigan.

THE Department of Law was opened in 1859. Its growth and influence have been marked. From the start it has been the constant endeavor of the Faculty to furnish facilities for legal training equal to any attainable elsewhere in the country. And no effort will be spared to make the department in the future deserving of continued and increased prosperity. The Faculty is composed of both resident and non-resident members. The resident members, sixteen in number, devote themselves regularly and continuously to the work of instruction. In addition to the instruction by the resident staff, which covers all the fundamental and ordinary branches of the law, provision is made for several courses by specialists upon such subjects as international law, Roman law, comparative constitutional law, constitutional history, admiralty law, legal ethics, insurance, mining law, irrigation law, patent law, copyright law, trademark law, and statute law.

The Department occupies a spacious building, devoted exclusively to its use. It is ample in its accommodations, and admirably adapted for law-school work.

The academic year extends from the Tuesday preceding the first Thursday in October to the last Thursday in June (October 4, 1910, to June 29, 1911).

For the summer session of the department, see a subsequent chapter.

DIRECTIONS TO APPLICANTS FOR ADMISSION

Before admission to the department, or to the entrance examination, the applicant is required to present to the Dean the Treasurer's receipt for payment of the matriculation fee and the annual fee. It is essential, therefore, that he apply first to the Secretary at his office in the Law Building, register his name as a student in the Department of Law, and pay his fees to the Treasurer. He is then entitled to apply for admission. In case of rejection, the money paid preliminary to the examination is refunded by the Treasurer.

REQUIREMENTS FOR ADMISSION

Applicants for admission to the first year class must be at least nineteen years of age; to the second year class, twenty; and to the third year class, twenty-one. Applicants for admission to the graduate class and special students must be at least twenty-one years of age.

Every applicant for admission, whether as a regular or as a special student, must present a certificate of character. This may be in the form of a general letter, or of a certificate of graduation or of honorable dismissal, as explained hereafter.

WHEN STUDENTS MUST ENTER

It is expected that all candidates for admission to any class will present themselves at the opening of the Department. Students who enter late, not only lose much of the benefit of the work, but seriously embarrass the administration of the Department. No excuse, therefore, unless of the most serious character, will be accepted for delay in entering, and in no event will students be admitted to regular standing in any class who present themselves after November 1st. Candidates for advanced standing, moreover, must present themselves and have their status determined at the examinations for advanced standing, held just before the opening of the department. The dates for these examinations for the year 1910-1911 are September 29, 30, October 1, 3.

Students may, by special permission, enter the Department at the beginning of the second semester. The student entering at the beginning of the second semester, however, cannot, unless he is at that time prepared to take advanced standing, become a candidate for a degree until he has completed the required three years of residence.

ADMISSION WITHOUT EXAMINATION

Graduates of approved universities or colleges, matriculates in good standing of approved universities or colleges, and students who have completed an academical or high school course of four years, approved by the Faculty, are admitted to the Department without examination, and may become candidates for the degree. In order to be entitled to this privilege, however, the applicant should present to the Dean of the Department, *either before or at the time of application for admission,* evidence that he comes within some one of the classes named. This in the case of the university or college graduate should be in the form of a certificate of graduation; in the case of the university or college matriculate, in the form of a certificate showing in detail the conditions of admission and the university or college work accomplished, and in addition including an honorable dismissal signed by the proper authority; in the case of the academical or high-school graduate, in the form of a certificate of graduation, in which should be incorporated a recommendation for admission to the Department. This certificate should show the length of time each subject was pursued and the standing of the applicant. *A diploma will not be accepted as evidence of the completion of the required academical or high-school work.* Blank forms for the certificate will be furnished upon application to the Secretary of the Department, and when filled out they should at once be mailed to the Dean, before the opening of the Department.

ADMISSION UPON EXAMINATION

All other applicants, if candidates for the degree, must pass a satisfactory examination in subjects that are the equivalent of a four-year high-school course. The total amount of work offered must be at least fifteen units, a unit meaning a subject of study pursued through a school year, with not less than five recitation periods each week. The character of the preparatory work that may be offered is indicated by the following description, but it should be understood that substantial equivalents will be received except in the case of plane geometry, which must be offered.

English Language.—Preparation in English should cover at least three years of high-school work in grammar, composition, rhetoric, and literature. The applicant must be able to write correct, clear and forcible English with ease. He will be required to write an essay of not less than two pages (foolscap), correct in spelling, punctuation, capital letters, grammar, and paragraphing. The topics for essays, which will be such as the applicant is likely to be familiar with and from which he may make a selection, will be given at the time of the examination.

English Literature.—The student offering this subject should have had, in addition to the three years' work in English language above described, a fourth year devoted to a systematic study of the outlines of English literary history, illustrated by the reading of representative authors of each of the representative periods.

Foreign Language.—The requirement in foreign language may be satisfied by two years of study in any foreign language, or by one year in each of two foreign languages; but a student may, if he desires, offer four years or six years of foreign language work as part of his entrance requirements.

History.—The work in this subject should cover a year's study of English history, a year or more of general history, and a year of United States history, or of United States history and civil government. A knowledge of English history is especially desirable for a student of law.

Mathematics.—Preparation in mathematics should cover at least a year and a half of algebra (through quadratic equations), and a year of plane geometry or of plane and solid geometry. No substitute can be accepted for the plane geometry.

Sciences.—A year's study with laboratory work upon each of any two or more of the following sciences as given in an approved school: Astronomy, botany, chemistry, geology, physical geography, physics, zoology. Two sciences studied in an approved manner for one-half year each may be offered for a year's study of one science.

EXAMINATIONS FOR ADMISSION

The examinations for admission to all Departments of the University are conducted by the Department of Literature, Science, and the Arts, in accordance with a schedule printed on page 83.

To secure admission to the entrance examinations a blank must first be obtained from the Secretary of the Department.

Applicants who are required to take an entrance examination should present themselves for such examination before Tuesday, September 27. Applicants presenting themselves too late for the scheduled examinations are required to pay an examination fee of five dollars.

If a student is admitted with conditions in entrance subjects he must remove such conditions within one year from the time when they were received. For this purpose he should present himself at the time indicated in the schedule on page 83. He will not be allowed to continue his law work after such time until the conditions are removed.

ADMISSION OF SPECIAL STUDENTS

Persons who are more than twenty-one years of age, but whose preliminary training has not been sufficiently extensive to satisfy the requirements for admission as regular students, may be admitted as special students. They must first, however, file with the Dean recommendations as to character and ability which satisfy him that they are qualified to pursue work in the Department with profit to themselves, and they will be required to pursue and complete the courses to which they are admitted with the same thoroughness as regular students.

Persons who have been reading law for a considerable period before applying for admission to the Department, but who are unable to satisfy the rules for admission to advanced classes, may under the guidance of the Dean select subjects from the different courses of instruction.

Should a special student desire subsequently to become a candidate for a degree, he must pass all the examinations for admission required of such a candidate at least one school year before the time when he proposes to graduate.

ADMISSION TO ADVANCED STANDING

Students properly qualified are admitted to advanced standing upon examination. The examinations for advanced standing in the class named are open to persons who have the general educational qualifications required for admission to the department, as indicated below:

1. To the second-year class:—

(*a*) Attorneys-at-law in good and regular standing from any state in which an examination for admission to the bar is required.

(*b*) Persons who have satisfactorily completed one year's work in another law school of approved standing, and who bring a proper certificate therof.

(*c*) Persons who actually and in good faith, and as their principal occupation, have pursued, for a period of not less than fifteen months, in the office or under the guidance of some reputable practitioner or instructor, a course of study fairly equivalent to that pursued in this department by students of the first year, and who present to the Dean of the department the affidavit of such practitioner or instructor showing with particularity that this requirement has been met.

2. For admission to the third-year class:—

(*a*) Persons who have received, in due course, the degree of Bachelor of Laws from an approved law school maintaining an undergraduate course of not less than two years of nine months each.

(*b*) Persons who have satisfactorily completed two years' work in an approved law school maintaining an undergraduate course of three years of nine months each, and who bring a proper certificate thereof.

The examination for advanced standing will be upon the subjects in the course that have been taken by the class which the applicant seeks to enter, or upon their equivalent. Under this regulation, the applicant is allowed to select the subjects for examination, but they must be the equivalent of those that have been taken by the class. He will receive credits for the subjects passed, and as to such subjects the examination will be final.

EXAMINATION FOR ADVANCED STANDING

In the fall of 1910 examinations for admission to advanced standing will be held from September 28 to October 3. All candidates are expected to present themselves at this time. Applicants for advanced standing, unless exempt from the preliminary requirements, should be present both at the examinations as to general education and to legal education.

The summer session of the Department offers advantages to applicants for advanced standing which are explained on page 372.

COMBINED COURSE IN COLLEGIATE AND LAW STUDIES

The marked tendency of the day is toward an increasingly thorough equipment for every profession. In no profession has the standard of proficiency more rapidly advanced than in the law. Accordingly every student expecting to enter this Department is urged to take as thorough and complete a collegiate course as his circumstances will permit. All who can do so are, therefore, urged to consider the combined course in collegiate and law studies more fully described on page 209. It is the aim of this course to provide a broad collegiate training with a thorough technical preparation for the practice of law.

SIX-YEAR COMBINED COURSE

By taking the combined course in collegiate and law studies it is now possible for students who receive permission to shorten from seven to six years the time required to earn the degrees of Bachelor of Arts and Bachelor of Laws. The work of students who receive permission to enter upon the combined course is under the supervision of a joint special committee consisting for the current year of Professors Reed, Hutchins, Goddard, Taylor, and Lloyd.

A fuller description of the combined course may be found on pages 209 and 210, where may be found, also, for those who cannot take the full six-year course, a suggested two-year course preliminary to the study of law.

CLASS RATING

It is expected that, at the time of their admission to the department, students will apply for and obtain such class rating as they may desire and be entitled to, and that such rating will be final. But in the case of subsequent unexpected change in circumstances or conditions, the Faculty will, at the beginning of a semester only, entertain special applications to change from special to regular standing, or the contrary.

No student, however, is permitted to change from special to regular standing unless he possesses the general educational qualifications required for regular admission to the department; nor is any student permitted by such change to shorten the time which otherwise would have been required to complete the course of study.

If the change requested contemplates advanced standing, the student must comply with the requirements for admission to advanced standing as stated above.

No student will be recommended for graduation in June who has, at the beginning of the semester prior thereto, outstanding conditions on work previously pursued in the department. Examinations for the removal of conditions are held at the end of the second week of the first semester of each year.

No special student will be permitted to become a regular student and pursue the work of the third year as a candidate for a degree in June unless all of the entrance requirements have been satisfied at or before the beginning of the year prior thereto. Regular students must remove all entrance conditions within one year from the time they are received, as explained on page 303.

COURSES OF INSTRUCTION

The course of instruction is a graded one, and extends through three years of nine months each. The following is a statement of the subjects upon which instruction is given and the time devoted to each subject. The work consists for the most part of quiz, accompanied by oral exposition on assigned work in text-books and cases. For all recitations the classes are divided into sections.

At the opening of each semester a schedule showing the hours of recitation and the texts and case books used is published and distributed.

FIRST YEAR

FIRST SEMESTER

Contracts.—Formation of a contract, including public policy. Text-book and cases. Three hours a week. Professor **Knowlton.**

Criminal Law.—Text-book and cases. Two hours a week. Professor **Rood.**

Elementary Law.—Elementary principles of jurisprudence, study of leading branches of the law as treated in Blackstone's Commentaries, Introduction, Book I (omitting chapters III-XIII), Book II (omitting chapters IV-XXIII). Lectures and text-book. Two hours a week. Professor **Drake.**

English.—Practice in writing English. The aim of this course is to develop ability to write readily, clear, correct, forcible, and concise English, a training that is of great importance to the lawyer. Two hours a week. Mr. **Kuhl.**

Sales of Personal Property.—Brief introduction by lecture on the nature and kinds of personal property; sale and contract to sell; statute of frauds; conditions and warranties, and remedies for breach thereof; delivery; acceptance and receipt; seller's lien; *stoppage in transitu;* bills of lading and *jus disponendi;* factor's acts. Text-book and cases. Two hours a week. Professor **Bates.**

Study of Cases.—One hour a week. Assistant Professor HOLBROOK.

Torts.—Text-book and cases. Two hours a week. Professor WILGUS.

SECOND SEMESTER

Agency.—Text-book and cases. Two hours a week. Professor GODDARD.

Common Law Pleading.—Text-book and cases. One hour a week. Professor BOGLE.

Contracts.—Operation, interpretation, and discharge of contract. Text-book and cases. Two hours a week. Professor KNOWLTON.

Criminal Procedure.—Text-book and cases. Two hours a week. Professor BUNKER.

Domestic Relations.—Husband and wife, parent and child, guardian and ward. Cases. Two hours a week. Assistant Professor HOLBROOK.

Real Property I.—Elementary principles of real property law following Blackstone, Book II, Chapters I-XXIII, accompanied by study of cases. Three hours a week. Professor ROOD.

Torts.—Text-book and cases. Two hours a week. Professor WILGUS.

Graduates of approved colleges, having a four year collegiate course, are excused from the course in English, as well as others who upon entrance to the department the first week in October pass an examination showing sufficient training in English.

SECOND YEAR

FIRST SEMESTER

Bailments and Carriers.—Brief consideration of bailments in general, and particular attention to the law of pledge, innkeepers, and common carriers of goods; carriers of passengers; the Post Office and telegraph and telephone companies as carriers of messages. Text-book and cases. Two hours a week. Professor GODDARD.

Bills of Exchange and Promissory Notes.—Includes a careful study of the Negotiable Instruments Law as enacted in many of the states. Text-book and cases. Two hours a week. Professor BUNKER.

Common Law Pleading.—Text-book and cases. Two hours a week. Professor BOGLE.

Corporations, Private.—The nature and classes of corporations; their creation, charter, and organization; corporate franchises, contracts and powers; consolidations and combinations in restraint of trade and competition. Cases. Two hours a week. Professor WILGUS.

Equity Jurisprudence I.—The origin and development of equity jurisdiction, general maxims, equitable titles, including an exhaustive study of trusts and of the powers, duties, and liabilities of trustees. Text-book and cases. Three hours a week. Professor CLARK.

Partnership.—Text-book and cases. Two hours a week. Professor DRAKE.

Real Property II.—Landlord and tenant, fixtures, remainders, executory interests, reversions, rule in Shelley's case, rule against perpetuities. Cases. Two hours a week. Professor THOMPSON.

SECOND SEMESTER

Code Pleading.—Text-book and cases. Two hours a week. Professor BOGLE.

Corporations, Private.—The doctrine of *ultra vires;* torts and crimes of a corporation; control of corporations, state and national; correlative rights of corporations, shareholders, officers, promoters, and creditors. Cases. Two hours a week. Professor WILGUS.

Damages.—Cases. Two hours a week. Professor DRAKE.

Equity Pleading and Procedure.—Text-book. Two hours a week. Professor THOMPSON.

Evidence.—Text-book. Three hours a week. Professor LANE.

Quasi-Contracts.—Obligations imposed by law, enforceable through contractual remedies. Lectures and cases. Two hours a week. Professor KNOWLTON.

Real Property III.—Easements, including water rights; transfer of estates *inter vivos.* Cases. Two hours a week. Professor THOMPSON.

THIRD YEAR

FIRST SEMESTER

Constitutional Law.—Text-book and cases. Two hours a week. Professor LANE.

Conveyancing.—The purpose and scope of the work are explained in the Law Announcement. Class divided into groups by states for the practical work. Text-book and practical work. Two hours a week. Professor BREWSTER, Assistant Professor HOLBROOK, and Mr. AIGLER.

Federal Courts.—The system of courts created under the authority of the Constitution of the United States, the jurisdiction of the several courts, and the procedure therein. Text-book. One hour a week. Professor BUNKER.

Judgments.—Attachments, garnishments, judgments, and executions. Text-book and cases. Two hours a week. Professor ROOD.

Practice Court.—The purpose and nature of the work are explained in the Law Announcement. Class divided into groups of four. One hour course. Professor SUNDERLAND, and Mr. STONER.

Practice.—The class is divided into two sections: one, consisting of Michigan students, studies Michigan practice; the other, consisting of the rest of the class, is instructed in general practice. Text-book One hour a week. Professor BOGLE.

Private International Law.—Questions arising in cases commonly treated under the topic Conflict of Laws. Text-book and cases. Two hours a week. Professor LANE.

Real Property IV.—Transfer of estates by will, by adverse possession, etc.; mortgages, including liens and chattel mortgages. Text-book. Two hours a week. Professor THOMPSON.

Suretyship.—Lectures and cases. One hour a week. Professor BUNKER.

In addition to the above courses which are required of all third year students, each candidate for a degree is required to complete one of the following:—

ELECTIVES

Jurisprudence, Science of.—The object of this course is to give students, after their study of the various branches of the law in isolation, a systematic and comprehensive study of the few underlying principles of all law, taking Holland's ***Elements of Jurisprudence*** as the basis of lectures and recitations. Definitions of jurisprudence, law, right, etc.; leading classifications of law and of rights; the relation of private, public, and international law. Two hours a week. Professor DRAKE.

Public Officers and Extraordinary Legal Remedies.—These subjects are treated in one course, as cognate to and supplementary of each other, the cases selected at the same time developing the law of extraordinary legal remedies and illustrating the law of public officers. Nature of office; eligibility; appointment and election; acceptance; qualifying; officers *de facto;* validity of contracts concerning offices and officers; resignation; removal; acceptance of incompatible office; rights, duties, and liabilities of officers; ***Mandamus, Quo Warranto; Prohibition; Certiorari; Procedendo; Habeas Corpus.*** Text-book and cases. Two hours a week. Professor BATES.

Railway Law.—Nature of the railroad; organization of the corporation; location, construction, and operation of the railway; railroad liability and accident law. In this course that portion dealing with the railroad as a carrier, which was considered in the course in bailments and carriers, is omitted. Text-book and cases. Two hours a week. Professor GODDARD.

SECOND SEMESTER

Conveyancing.—The work is explained in the Law Announcement. Class divided into groups by states. Two hours a week. Professor BREWSTER, Assistant Professor HOLBROOK, and Mr. AIGLER.

Corporations, Public.—Creation and control of public corporations; constitutional limitations concerning the same; powers, including police powers, control of streets and highways, taxation and assessments, eminent domain, corporate powers; municipal securities, charters, ordinances, liabilities, and duties. Text-book and cases. Two hours a week. Professor BATES.

Equity Jurisprudence II.—Grounds of relief in equity; equitable remedies (excepting specific performance and receivers), and special heads of equity, such as equitable estoppel, election, satisfaction, notice, priorities, and subrogation. Text-book and cases. Two hours a week. Professor CLARK.

Equity Jurisprudence III.—Specific performance and receivers. Lectures and cases. Two hours a week. Professor BUNKER.

Insurance Law.—History, nature, and general principles of insurance law; fire, life, accident, and marine insurance. Text-book. Two hours a week. Professor LANE.

Practice Court.—The work is described in the Law Announcement. Class divided into groups of four. Two hour course. Professor SUNDERLAND, and Mr. STONER.

Wills and Administration.—Gifts *causa mortis;* descent and distribution; testamentary capacity; execution, revocation, and revival of wills; construction of wills; ademption and lapse of legacies; executors and administrators; payment of legacies; distribution of estate. Text-book and cases. Three hours a week. Professor BATES.

The above courses are required of each candidate for a degree. In addition he must complete one of the following:—

ELECTIVES

Bankruptcy and Insolvency.—Assignments at the common law; procedure under the Bankruptcy Act. Lectures and cases. Two hours a week. Assistant Professor HOLBROOK.

Medical Jurisprudence.—The legal rights, duties, and liabilities arising out of the relation of the physician to the patient and the public; medical jurisprudence from the point of view of the physician. Two lectures and one hour of quiz each week. Professors HUTCHINS and VAUGHAN.

Roman Law.—A sketch of the history of the Civil Law, together with an outline of the fundamental principles of the Justinian Code. Sohm's *Institutes of Roman Law.* Two hours a week. Professor DRAKE.

Taxation.—The nature and purpose of taxes; the taxing power and its limitations; system and subjects of taxation; the collection of taxes and remedies applicable thereto. Cases. Two hours a week. Professor BREWSTER.

Besides the work above enumerated each third year student has to write a thesis, for which directions are given in the Law Announcement.

SPECIAL COURSES

The following courses of special lectures, given at intervals during the year, are open to members of the second and third year classes:—

Admiralty Law.—Judge Swan.
Copyright Law.—Mr. Reed.
Trade-mark Law.—Mr. Rogers.
Irrigation Law.—Mr. Clayberg.
Legal Ethics.—Mr. Maxwell.
Michigan Statute Law.—Mr. Boudeman.
Mining Law.—Mr. Clayberg.
Patent Law.—Mr. Walker.
Practical Instruction in the Use of the Law Library.—Mr. Cooley.
Roman Law, Advanced Course.—Professor Drake.
Spanish Law.—Professor Drake.
Statute Law.—Mr. Boudeman.

EXAMINATIONS

It is the purpose of the Faculty that the work of the Department shall be characterized by its completeness and thoroughness. The aim is to fit students for the practice of law in any part of the country. As one means of accomplishing the desired result, the examinations are made comprehensive and searching. The university year is divided into two terms, called semesters. At the end of each, two weeks are set apart for the thorough examination of all students upon the work of the semester. The examinations are in writing, and are final as to the work of the semester. The promotion of a student to full standing in his class at a subsequent semester, and his continuance in the Department, are dependent upon the manner in which he passes such examinations. Furthermore, the Faculty do not hesitate to drop a student from the rolls at any time during the year, when satisfied that he is neglecting his work and not conforming to the requirements of the Department.

THE PRACTICE COURT

It has been an objection frequently urged against the completeness of the training given in law schools that the student acquires no knowledge of actual practice. This objection has been largely removed by the introduction of the practice court. The practice court is a part of the department, and is presided over by the professor of practice, who gives his entire time to this work, while other members of the Faculty co-operate in conducting it. Its work is divided into three parts, that of the law term, that of the jury term, and that of appellate jurisdiction. The court is provided with a full corps of officers, including the members of the Faculty, who may sit from time to time as presiding judge, the full bench of judges sitting as a supreme court, a clerk, a sheriff, and the necessary deputies. Ample and commodious rooms have been provided for the use of the court, including a large court room fitted up with all the furniture and fittings necessary for the trial of jury cases, jury rooms, and clerk's office. The latter is provided with all the books and records used in actual practice, and a full supply of the blanks in common use in the several states.

The purpose of the court is to afford to the student practical instruction in pleading and practice both at law and in equity, under the common law system and the "code" or "reformed" procedure, and actual experience in the commencement and trial of cases through all their stages. In commencing the actions, the students assigned to the case are permitted to select the state in which the action is supposed to be brought, thus enabling the student to acquire the practice as prevailing in his own state. All questions of practice, pleading, and procedure are governed by the law of the state in which the action is so laid, but questions of substantive law are determined according to the weight of authority.

Two classes of cases are presented:

First. Cases arising upon given statements of fact, prepared and assigned by the professor of practice, upon which process is to be issued, pleadings framed, and the case conducted to an issue, when it is argued and disposed of as a question of law upon the facts submitted. This class of cases affords the student practical experience in the commencement of suits, the preparation of pleadings, and the argument of the questions of law arising from the facts. The practice and pleadings are under the common law or the code procedure as the students may elect. There are two public hearings in this course: *a.* The questions arising upon the pleadings are argued and disposed of at a regular session of the court presided over by the professor of practice. *b.* After the pleadings have been approved, the case is set down for a separate hearing upon the question of law. This argument is heard either by the professor of practice or by that member of the Faculty who has charge of the instruction in the subject involved. When the issues so arising have been satisfactorily disposed of, the student is given credit for the first course.

Second. Actual controversies are arranged and assigned for trial as issues of fact. The course includes the entire conduct of an actual case from its beginning to a final judgment in the supreme court. This involves the issue of a proper process, the preparation and filing of appropriate pleadings, the subpœnaing of the witnesses, the impaneling of a jury, the examination and cross-examination of witnesses, the arguments to the court and jury, and all the other incidents of a contested trial.

For the purpose of this work the class is divided into sections, and the work of attorneys, witnesses, jurors, and the like is performed by the students. A member of the Faculty presides at these trials, and they are conducted with all the dignity and decorum of actual practice. Upon the satisfactory completion of the course, credit is given for it.

Every member of the third-year class who is a candidate for a degree is expected to take part in both courses, and to perform all the incidental duties which may be required of him. Satisfactory completion of both courses is a condition precedent to graduation.

The practice court supersedes the moot courts formerly conducted in the department.

CONVEYANCING

In order further to extend the practical instruction given in this department, a course in conveyancing is provided. It is the purpose of this course to give by text-books and lectures a full and systematic instruction in the substantive law of conveyancing, and also a thorough drill in the actual preparation of all the more important forms of conveyances, including thereunder not only deeds, mortgages, wills, and assignments of various sorts, but also such contracts, agreements, corporate and partnership articles, and other instruments, as the lawyer in actual practice is likely to be called upon to prepare. To accomplish this purpose, the class is furnished with statements of fact and with a requisition for the appropriate conveyance, and each student is required to prepare, under the direction of the professor in charge of this course, the various forms of instruments in question, and to submit them for examination and criticism. If not in proper form, they must be rewritten or corrected. Neatness, accuracy, and a lawyer-like method of expression are insisted upon. The correctness of the body of the instrument is not alone attended to, but the variations of form in the execution and acknowledgment where one of the parties is a corporation, a partnership, a married woman, and the like, receive attention.

The work in this course must be satisfactorily completed by each member of the third year class.

ORATORY

It is important that those who study law with a view to becoming advocates should give attention to the subject of public speaking. It is a mistake to suppose that excellence in speaking is simply a gift of nature, and not the result of patient and persistent labor and study.

Information regarding the University Oratorical Association, the Northern Oratorical League, the Central Debating League, the testimonials, and the annual contests in oratory and debate, which afford opportunity for a practical appliction of the principles taught, may be found on pages 60 to 62.

The following courses, given by Professor Trueblood and Assistant Professor Hollister, are optional; but when a student has elected a course he is required to complete it. Failure to do so will affect his standing at graduation.

First-Year Class

FIRST SEMESTER

1. *Elocution.* Exercises in vocal culture, breathing, position, and gesture; pronunciation and emphasis; elements of quality and force of voice, with their application to choice passages from the orators. Two sections. Two hours a week.

SECOND SEMESTER

2. *Elocution.* Exercises in vocal culture, continued; principles of action. Elements of pitch and time, and their application to representative selections. Two sections. Two hours a week.

Second-Year Class

FIRST SEMESTER

3. *Debating.* Study and application of the principles of argumentation. Preparation of briefs. Leading questions of the day debated in class. The aim is to develop readiness in extempore speaking, to give freedom and ease on the platform, and to cultivate the logical processes of analysis and discrimination. All who expect to enter the debating contests should take this course. Two hours a week.

SECOND SEMESTER

4. *Debating.* Continuation of Course 3. Two hours a week.

WORK IN THE DEPARTMENT OF LITERATURE, SCIENCE AND THE ARTS

CONSTITUTIONAL HISTORY AND POLITICAL SCIENCE

It seems now to be conceded that the law should be studied in a law school, and that the law school should be connected with a university, where students can avail themselves of opportunities for the study of such other branches of learning as are of allied significance.

It is believed that students in the Department of Law may derive great benefit from the instruction given on kindred subjects in the Department of Literature, Science, and the Arts. Students who first obtain permission from the committee in charge of the combined work in the two Departments (see below) are allowed to attend lectures delivered in that department free of charge. But the Law Faculty reserves the right to require such students to give up any or all studies they may be pursuing in the other Department, whenever it appears that the pursuit of these studies is attended with an unsatisfactory performance of the duties required in the Department of Law. Among the subjects regarded as particularly suitable for law students the following may be named: Political and Constitutional History of England; Constitutional History; Comparative Constitutional Law; History of the Middle Ages; Elements of International Law; History of Treaties; the economic sciences.

GRADUATE STUDY

Opportunities for graduate study will be furnished by the Department to students who show themselves to be specially fitted for such work. No definite announcement is made as to the character and scope of graduate work, but a committee of the faculty will arrange a course of advanced study for each student who, upon making special application therefor, may be permitted by the faculty to pursue such work.

REQUIREMENTS FOR GRADUATION

THESIS

Each candidate for a degree is required to prepare and present a thesis, not less than four thousand words in length, upon some legal topic selected or approved by the Committee on Theses.* The thesis must be satisfactory in matter, form, and style; must be neatly and accurately typewritten; and must be filed with the Committee *on or before the fifteenth of April of the year in which the degree is to be taken.*

THE DEGREE OF BACHELOR OF LAWS

Students who have received the full course of undergraduate instruction, performed all required exercises, and passed the regular examinations, are admitted to the degree of Bachelor of Laws. Students admitted to advanced standing are entitled to all the privileges of the class of which they become members. No diploma can be issued to a candidate till he becomes twenty-one years of age.

THE DEGREE OF JURIS DOCTOR

The degree of Juris Doctor (J.D.) will be conferred upon such graduates of approved universities and colleges as complete the full three years law course in the Department and are recommended therefor by the Faculty.

CERTIFICATES OF ATTENDANCE

A person who has been connected with the school for a period not entitling him to graduate may, on application to the Secretary of the Department, receive an official certificate of attendance, which states the time of his attendance and the degree of his attainment.

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*The Committee on Theses for the current year consists of Professors Bates, Bunker, and Holbrook.

LIBRARIES

The Law Library contains the reports of the courts of last resort of every state in the Union, the reports of intermediate appellate courts where such exist, and of many of the inferior state courts, the reports of the Federal courts, the English, Scotch, Irish, Canadian and British Colonial reports, together with such collateral reports as the Law Journal Reports, the Jurist, the Law Times Reports, the Weekly Reporter, the Scottish Law Reporter, the Irish Jurist, the Irish Law Times, the English Ruling Cases, the National Reporter System, the American Decisions, the American Reports, the American State Reports, and the Lawyers' Reports Annotated, as well as several series of cases upon which particular branches, such as the American Probate Reports, the American Electrical Cases, the American and English Railroad Cases, the American and English Corporation Cases, etc. Of several of the more important series one or more duplicates are to be found in the library. It also contains an extensive collection of treatises and text-books, both English and American, and the statutes of the several states, the United States, Great Britain and her colonies, together with the session laws, bringing the same to date. Files of the earlier session laws of the states are being acquired as speedily as possible, and those of the United States, Michigan, New York, and Pennsylvania are already complete. New reports, as they are issued, are added, as are new text-books and treatises of merit. The library is also well supplied with sets of selected and leading cases and of legal periodicals.

Bound volumes of the leading American and foreign legal periodicals are filed, and many of the earlier sets, now discontinued, have also been placed on the shelves.

The library was enriched some years ago by the gift of the valuable law library of the Honorable Richard Fletcher, formerly one of the Justices of the Supreme Court of Massachusetts.

The late Honorable Christian H. Buhl, of Detroit, presented a large collection of reports and text-books, known as the Buhl Law Library, and later bequeathed to the University for the Law Library the sum of ten thousand dollars, which has been expended in the purchase of books, adding materially to the value and efficiency of his earlier gifts.

Still later the valuable law library of the Honorable Samuel T. Douglass, for many years one of the leading lawyers of the state, and formerly one of the Justices of the Supreme Court of Michigan, was added to the collection.

These gifts, together with that of the heirs of Honorable Thomas M. Cooley, those of O. H. Dean, and others, have enabled the department to provide for its students exceptional library facilities.

A card catalogue of the text-books is approaching completion, the printed cards issued by the Government being added as soon as they are available.

The library is open for consultation by students from 8 A. M. to 12 M., from 1 to 6 P. M., and from 7 to 10 P. M., during the academic year. Students are not permitted to take the books from the building, but during the hours named are allowed free access to them.

The General Library of the University is also open to use by students in the Department of Law.

LITERARY SOCIETIES

There are two flourishing literary societies—the Webster, and the Jeffersonian—established and conducted by the students of law for the purpose of literary culture.

MICHIGAN LAW REVIEW

THE MICHIGAN LAW REVIEW is a legal periodical conducted under the auspices of the Department of Law. It is edited by a member of the Law Faculty, assisted by a Faculty Advisory Board, but all members of the Faculty co-operate in conducting it. Students selected from the Third Year Class, act as editorial assistants.

The purpose is to give expression to the legal scholarship of the University, and to serve the profession and the public by timely discussion of legal problems, and by calling attention to the most important developments in the field of jurisprudence.

The REVIEW is made up of four chief departments: First, leading articles upon important and interesting legal subjects; second, notes and comments upon current topics and significant occurrences in the legal world; third, abstracts and digests of the most important recent cases; and fourth, reviews of books and comments on legal literature.

It is the aim to make the REVIEW practical without usurping the functions of the text-book or the digest, and scholarly without being so academic in character as to be out of touch with the needs and aims of the lawyer of today. It contains about eighty pages in each issue, and regularly appears on the first of each month during the academic year. The enterprise is in no sense conducted for the pecuniary benefit of those engaged in it, or any of them. All profits, which may accrue, are devoted to the improvement of the magazine, and the promotion of the welfare of the Department of Law.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance, and no student is allowed to select his seat until after such payment. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *fifty-five dollars;* for all others, *sixty-five dollars.*

Library Fee.—For all students, *two dollars* annually.

Graduation Fee.—For all alike, *ten dollars.*

For additional information in regard to expenses, see pages 71 to 73.

School of Pharmacy

A special Announcement giving further information in regard to this school is published annually. For copies of this Announcement, or for other information relating to the school, address The School of Pharmacy, Ann Arbor, Michigan.

THE School of Pharmacy gives training for all branches of pharmacy and for various chemical pursuits. It provides a well-grounded preparation for services as a manufacturing chemist, or as an analyst. The graduate is assured a thorough qualification for the prescription table, and for the most responsible positions in pharmacy. He is fitted to act as the chemist of the medical profession. He is in a position to meet the wants of manufacturers of foods and drugs, who guarantee quality and strength of their products as demanded by the Food and Drugs Act which became a law January 1, 1907. In respect to the discipline of both the intellectual and the executive powers, the work of the school offers decided advantages, in the steady requirement of severe studies, and of exact operations on the part of each student.

The school year extends from the Tuesday preceding the first Thursday in October to the last Thursday in June (October 4, 1910, to June 29, 1911). Students of the first year are released the second Friday before Commencement.

For the full regular work, admission cannot be granted at any other time than at the opening of the first or the second semester (February 13, 1911), as students are instructed in classes in progressive order. For investigation, or special studies, students can be received at any time when there is room in the laboratories. Many of the subjects taught in the school can also be taken in the Summer Session of the University (see page 360).

REQUIREMENTS FOR ADMISSION

[For admission to advanced standing, see page 322.]

[For admission of students not candidates for a degree, see page 321.]

The requirements for admission vary in some particulars with the applicant's previous training in practical pharmacy, and with the course of study he intends to pursue. They are described below in two divisions: (I) requirements for admission to the two-year course, leading to the degree of Pharmaceutical Chemist; (II) requirements for admission to the four-year course, leading to the degree of Bachelor of Science in Pharmacy.

Application for admission must be made upon a special form of recommendation properly filled out and signed. Blank forms for this purpose are furnished on application to the Dean of the Department.

I. COURSE LEADING TO THE DEGREE OF PHARMACEUTICAL CHEMIST

Applicants for admission to the two-year course, leading to the degree of Pharmaceutical Chemist, must be at least sixteen years of age.

Admission Without Examination

From High Schools.—Applicants holding diplomas of graduation in any of the full courses of the schools approved by the Faculty of the Department of Literature, Science, and the Arts (compare page 84), are admitted without examination, as are, also, graduates of four-year courses of other high schools of good standing.

From Colleges.—Students who have completed at least one year's work in an approved college of literature and science, and who bring explicit and official certificates describing their course of study and scholarship, and testifying to their good character, are admitted without examination. Graduates of reputable colleges of medicine or of pharmacy are also admitted without examination.

Admission on Examination

The requirements for admission are stated below in *units*, a unit meaning a subject of study pursued through a school year, with five recitation periods each week.

1. Persons who have not been engaged in the practice of pharmacy for at least two years and who are not entitled to enter under the terms previously mentioned must present satisfactory credentials for or take an examination in *fifteen units* of study. The fifteen units must include:

English, 2 units.

Mathematics (arithmetic, algebra, and plane geometry), 3 units.

Physics, 1 unit.

The remaining nine units may be selected by the applicant from the following list of optional requirements:

Chemistry, 1 unit.
Botany, 1 unit.
Physiology, 1 unit.
Latin, 1, 2, or 3 units.
German, 1, 2, or 3 units.
English Literature, 1 unit.
Zoology, 1 unit.
Mathematics (additional, including Solid Geometry), 1 unit.
Greek, 1 or 2 units.
Bookkeeping and Commercial Practice, 1 unit.
French, 1, 2, or 3 units.
Physiography, 1 unit.
History, 1, 2, or 3 units.
Civil Government, 1 unit.
Geology, 1 unit.
Astronomy, 1 unit.

2. Persons who bring evidence of *having been engaged in the practice of pharmacy* for at least two years are required to offer satisfactory credentials or present themselves for examination in *thirteen units* of study. The thirteen units must include:

English, 2 units.

Mathematics (arithmetic and algebra), 2 units.

Physics, 1 unit.

The remaining eight units may be selected by the applicant from the list of optional requirements given above.

II. COURSE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACY

The requirements for admission to the four-year course, leading to the degree of Bachelor of Science in Pharmacy, are the same as the requirements for admission to the Department of Literature, Science, and the Arts. See pages 73 to 85.

The rules relating to conditional admission and to admission from diploma schools (page 84) apply also to students admitted to the four-year course in the School of Pharmacy.

TIME OF EXAMINATIONS

The examinations for admission to both the two-year and the four-year courses are conducted by the Department of Literature, Science, and the Arts, in accordance with the schedule on page 83.

ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE

Persons over twenty-one years of age, who are able to study with advantage in the school, may be admitted to pursue selected studies upon passing the admission requirements in three units of English. The same privilege is accorded to persons over nineteen years of age who bring evidence of having been engaged in the practice of pharmacy for at least two years.

Students admitted under the foregoing provisions are not regarded as candidates for any degree, and they do not become eligible for graduation until they have passed all the examinations for admission to the course leading to the degree which they seek to obtain.

Students not candidates for a degree may select such studies as they are found prepared to pursue, under the regulations of the Faculty. Courses of selected studies are arranged for students, to suit their purposes and qualifications. Selected studies may be continued so long as, in the judgment of the Faculty, they are carried with success and profit.

ADMISSION TO ADVANCED STANDING

Students who have been admitted to the school may apply for credit in any of the subjects here taught, which they may have pursued in another college or in a high school whose graduates are entitled to admission. The application should be made to the Dean at the time of entering the school. It will be referred to the professor in charge of the studies in which credit is asked, and he will determine how much credit, if any, can be given. To this end he may appoint a time for examination of the applicant upon the subject. Credits from other schools of pharmacy are adjusted separately for each study, in a similar manner. Owing to differences in the order and extent of the studies, credits cannot be counted in years of pharmaceutical college study. Applicants are desired to bring explicit credentials as to work done, or to send such credentials in advance, if they wish them acted upon before the opening of the school year.

Students in the four-year course, applying for advanced credit, will govern their applications according to the rules in force in the Department of Literature, Science, and the Arts (page 85), though making their application to the Dean of the School of Pharmacy.

COURSES OF INSTRUCTION

The courses of instruction comprise lectures, recitations, and laboratory work. The amount of work in each course is expressed in hours, an *hour* signifying one exercise a week during one semester. A lecture or recitation is usually one hour in length. A laboratory exercise occupies approximately three hours, being continued until the work assigned to one exercise, or a due proportion of the work assigned to the course, has been completed. The satisfactory completion of one exercise a week during one semester, including a sufficient standing in the examination held at the end of the semester, entitles the student to *one hour of credit* toward graduation. It is expected that a lecture or a recitation with the personal study necessary to maintain the student's standing in the subject, will take in all as much time as a laboratory exercise. Therefore an *hour of credit* is regarded as having the same value whether obtained in a course of lectures or in a course of laboratory exercises.

In the descriptive schedule that follows, the letters A, B, C, etc., denote courses designed primarily for students in the School of Pharmacy. The courses designated by numbers are, with a few exceptions, practically identical with corresponding courses, similarly numbered, given in the Department of Literature, Science, and the Arts (compare pages 93 to 200). The amount of credit toward graduation is indicated by the expressions *two hours, three hours,* etc.

PHARMACY

A. Theory and Practice of Pharmacy. Lectures and recitations. *Three hours.* First semester. Mr. SHANNON.

B. Operative Pharmacy and Pharmaceutical Preparations. Laboratory work and recitations. *Five hours.* First semester. Professor STEVENS, Mr. SHANNON, and Mr. JORDAN.

B1. Manufacturing Pharmacy and Drug Assaying. *Three hours.* Continuation of Course B. Second semester. Professor STEVENS and Mr. JORDAN.

C. Pharmacopœia and Natural Formulary. Recitations. *Five hours.* Second semester. Professor STEVENS.

D. Prescription Reading and Incompatibilities. Lectures and recitations. *Two hours.* First semester. Professor STEVENS.

D1. Practice at the Prescription Stand. *One hour.* Second semester. Professor STEVENS and Mr. JORDAN.

BOTANY

A. Pharmaceutical Botany. Lectures and laboratory work. *Two hours.* First semester. Dr. KAUFFMAN.

B. Microscopy of Foods and Drugs. Lectures and laboratory work. *Four hours.* Second semester. Professor SCHLOTTERBECK, Mr. SHANNON, and Mr. TRACY.

C. Advanced Microscopy of Foods and Drugs. Laboratory work and collateral reading. *Two* or *three hours.* Second semester. Professor SCHLOTTERBECK.

PHARMACOGNOSY

C. Study of Crude Drugs. Lectures, recitations, and practical exercises. *Four hours.* First semester. Professor SCHLOTTERBECK and Mr. TRACY.

PHARMACOLOGY AND THERAPEUTICS

D. Materia Medica. Recitations and lectures. *Four hours.* Second semester. Dr. Roth.

CHEMISTRY

1. Elementary Inorganic Chemistry. *Two hours.* Two experimental lectures and one recitation a week. Professor Bigelow.

Course 1 must be accompanied by Course 1*a*.

1*a*. Elementary Inorganic Chemistry. *Two hours.* Two laboratory periods and one hour discussion of laboratory work a week. Professor Bigelow, Mr. Bartell, and Mr. Hunter.

2 and 2*a*. Elementary Inorganic Chemistry. Continuation of Courses 1 and 1*a*, the hours, credits, and instructions being the same in each semester.

Course 2 must be accompanied by Course 2*a*.

A. Inorganic Chemistry. Descriptive and Experimental. Lectures and quizzes. *Four hours.* First semester. Dr. Lichty.

Course A is a course for beginners.

A*a*. Inorganic Chemistry. *Two hours.* Two laboratory periods and one hour discussion of laboratory work a week. Mr. Britton.

Must accompany Course A.

3. Qualitative Analysis. Laboratory work and recitations. *Seven hours.* Either first or second semester. Professor Johnson and Mr. Carney.

Course 3 must be preceded by a course in General Chemistry.

5. Quantitative Analysis. Laboratory work, lectures, recitation. *Five hours.* Either first or second semester. Professor Campbell and Dr. Willard.

Course 5 must be preceded by Course 3.

28. Advanced Quantitative Analysis. Laboratory work. *Five hours.* Either first or second semester. Professor Campbell and Dr. Willard.

Course 28 must be preceded by Course 5. It is open only to those who receive special permission.

7. Carbon Compounds. Lectures. *Five hours.* First semester. Professor Gomberg.

Course 7 must be preceded by a course in General Chemistry and a course in Analytical Chemistry.

42. Organic Preparations. Laboratory work in organic synthesis. *Three, four* or *five hours.* Either first or second semester. Professor Gomberg and Dr. Cone.

Course 42 may accompany or follow Course 7.

44. Organic Analysis. Laboratory work and lectures. *Four hours.* Second semester. Professor Schlotterbeck, Mr. Shannon, and Mr. Tracy,

Course 44 must be preceded by Course 7 and by a course (5) in Quantitative Analysis.

44a. Food and Drug Analysis. Laboratory work. *Five hours.* Second semester. Professor SCHLOTTERBECK, Mr. SHANNON, and Mr. TRACY.

10. Organic Chemistry. Lectures. *Four hours.* Second semester. Professor GOMBERG.

Course 10 is intended primarily for classes in other departments of the University and is open to students in the School of Pharmacy only by special permission.

PHYSIOLOGICAL CHEMISTRY AND BACTERIOLOGY

2. Bacteriology. Lectures. *Three hours.* First semester. Professor NOVY.

3. Bacteriology. Laboratory work. *Three hours.* Professor NOVY.

Course 3 is given four times a year, each class working for two months.

8. Physiological Chemistry. Lectures. *Three hours.* First semester. Professor VAUGHAN.

9. Physiological Chemistry, including the Analysis of Urine. Laboratory work and lectures. *Four hours.* Professor NOVY.

Course 9 is given four times a year, each class working for two months. It must be preceded by a course in Qualitative Analysis and by Course 7 in Organic Chemistry.

PHARMACOLOGY

1. Pharmacology. Lectures, recitations, and demonstrations. *Three hours.* Second semester. Professor EDMUNDS.

It is open only to those who receive special permission, and who have had previous work in physiology.

4. Experimental Pharmacology. Laboratory work, daily for nine weeks, each semester. Professor EDMUNDS and Dr. ROTH.

MINERALOGY

1. Elements of Mineralogy. Lectures and laboratory work. *Two hours.* First or second semester. Professor KRAUS.

Course 1 should be preceded by a course in General Chemistry.

2. General Mineralogy. Lectures and laboratory work. *Five hours.* First semester. Professor KRAUS.

Course 2 should be preceded by a course in General Chemistry and a course in Analytical Chemistry. It includes Course 1.

PHYSICS

1. Mechanics, Sound, and Light. *Four hours.* First semester. Mr. WILLIAMS.

For Course 1 a knowledge of plane trigonometry is indispensable.

2. Heat and Electricity. Lectures. *Four hours.* Second semester. Mr. WILLIAMS.

Course 2 must be preceded by Course 1 and by a course in General or in Analytical Chemistry.

COMMERCIAL TRAINING

A practical course in commercial training, embracing such subjects as bookkeeping for the retail pharmacist, checks, notes, drafts and exchange, bills, statements, collections, price lists, credits, discounts, mercantile agencies, and inventories and balances, is prescribed for all students of the school.

38P. Elements of Accounting. Lectures and laboratory work. *Two hours.* Second semester. Mr. DORNEY.

RESEARCH

Courses in research, in either the first or second semester, are open to any regularly registered student, suitably prepared by previous training to enter upon an investigation, whether the results are to be published or not. The work undertaken is in charge of one or more members of the Faculty, and is entitled to credit toward a degree in proportion to its extent and value. The opportunity for undergraduates to enter upon research work is usually limited to the last year of the four-year course. The holder of a fellowship devotes his time to experimental research with publication of the results in view.

EXAMINATIONS

An examination upon each course of instruction is held at the time the work of the course is completed. The examinations, therefore, are held mostly at the end of a semester (in February and in June).

The result of an examination, for each student enrolled, is reported to the Faculty by the professor in charge, in terms as follows:

Passed.—Entitling the student to full credit for the course.

Conditioned.—Imposing some specific condition, usually to take another examination, the condition to be fulfilled before credit can be given.

Provisionally Passed.—Withholding the credit from the course until the student shall have done better work in other studies, in the judgment of the Faculty as a whole, which can change the record of Provisionally Passed to a record of Passed, or Conditioned, or Not Passed, whenever such change shall be justified by the scholarship of the student in his several studies.

Not Passed.—Requiring the student to go over the regular exercises of the study again before he receives another examination.

Absent.—With statement of the cause of absence; if the student has left the class, stating at what time; or stating if absent without excuse or explanation.

SUCCESSION OF STUDIES

I. IN THE TWO-YEAR COURSE

First Year, First Semester:—Chemistry A and A*a* (inorganic), Pharmacy A and B, Botany A.

First Year, Second Semester:—Chemistry 3 (qualitative), Botany B (micro-botany), Pharmacy E (inorganic), Elements of Accounting 38P.

Second Year, First Semester:—Chemistry 5 (quantitative), Chemistry 7 (organic), Pharmacognosy C, Pharmacy D (Prescriptions).

Second Year, Second Semester:—Chemistry 44 (organic analysis), Pharmacy B1 (Pharmaceutical Preparations and Drug Assaying), and C (Official Drugs), Pharmacology and Therapeutics D, Pharmacy D1 (Prescriptions).

The studies enumerated above are, without exception, required for the degree of Pharmaceutical Chemist. They constitute an amount of work which taxes the full working power of a student of average quickness and strength of scholarship. Students who enter the school at the beginning of the second semester will probably find it desirable to take five semesters for the completion of the work; and other students who desire a longer time for the same work may apply for it on entering the school, or during the first semester of residence, and obtain from the Faculty a distribution of all the work through five or six semesters, as may be found advisable in each case.

II. IN THE FOUR-YEAR COURSE

Students who enter the school prepared in Latin, in German, and in chemistry, as high school studies, are advised to arrange their work in general accordance with the scheme printed below, taking such additional elective work as may be found desirable. Students who enter with French instead of German, or without chemistry, are advised, in general, to follow the same scheme, with such modifications as may be necessary. In the latter part of the course, considerable time is left free for elective studies and for research.

First Year, First Semester:—Mathematics, *four hours;* German *four hours,* or French, *four hours;* General Chemistry, *four hours* Rhetoric, *three hours,* or Pharmaceutical Botany, *two hours.*

First Year, Second Semester:—German, *four hours;* or French, *four hours;* Rhetoric, *three hours;* Micro-botany, *three hours;* General Chemistry, *four hours.*

Second Year, First Semester:—Analytical Chemistry, *seven hours;* Pharmacognosy, *four hours;* Physics, *four hours;* Pharmacy A, *three hours.*

Second Year, Second Semester:—Quantitative Analysis, *five hours;* Pharmacy E, *two hours;* Elementary Physical Chemistry, *three hours;* German reading, *one hour;* Electives, *four* or *five hours.*

Third Year, First Semester:—Pharmacy B, *five hours;* Organic Chemistry, *five hours;* Mineralogy, *two hours;* Electives, *three* or *four hours.*

Third Year, Second Semester:—Organic Analysis, *four hours;* Pharmacy B1, *three hours;* Elective studies, *eight* or *ten hours.*

Fourth Year, First Semester:—Synthetic Organic Chemistry, *five hours;* Pharmacy D, *two hours;* Elective studies and studies in research, *ten hours.*

Fourth Year, Second Semester:—Pharmacology and Therapeutics, *four hours;* Bacteriology, *six hours;* Pharmacy C, *four hours;* Pharmacy D1, *one hour;* Electives or research, *three hours.*

ELECTION AND REGISTRATION OF STUDIES

On or before the first Saturday of each semester, each student should determine upon his studies for that period, and register them in due form upon an "election blank" obtained from the Secretary of the Faculty.

In the two-year course the studies are mainly, though not wholly, the same for all students, and the order of succession is as given on page 327. When opportunity of choice is offered, the student should consult in advance with members of the Faculty.

If a student registered in the School of Pharmacy takes work in mathematics, physics, language, or other subjects, in the Department of Literature, Science, and the Arts, he must also register such studies on an "election blank" of that Department countersigned by the Dean or the Secretary of the School of Pharmacy, and filed in accordance with the rules of that Department.

REQUIREMENTS FOR GRADUATION

[Experience in the business of pharmacy is not made a requirement for a degree.]

THE DEGREE OF PHARMACEUTICAL CHEMIST

The degree of Pharmaceutical Chemist is conferred upon students who have completed the prescribed work of the two-year course, as described on page 327, and have obtained credit for examination therein in the manner above stated.

THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACY

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Pharmacy, the student must secure *one hundred and twenty hours of credit.* The prescribed portion of this work is as follows, the figures in brackets denoting courses given in the Department of Literature, Science, and the Arts (compare pages 93 to 200):

In Rhetoric:—Courses [1], [2].

In German:—For those who entered *without* German, Courses [1], [2]; for those who entered *with* German, four hours advanced German.
In French:—For those who entered *without* French, Courses [1], [2]; for those who entered *with* German, four hours advanced French.
In Mathematics:—Course [1].
In Physics:—Course [1].
In Chemistry:—Courses [1], [1*a*], [2], [2*a*], [3], [5], [7], 44.
In Mineralogy:—Course 1.
In Botany:—Courses A and B.
In Pharmacognosy:—Course C.
In Pharmacology and Therapeutics:—Course F.
In Pharmacy:—Courses A, B, B1, C, D, D1, and E.
In Accounting:—Course 38P.

From the other courses offered in the school, or in other departments of the University, the student, with the approval of the Faculty, must choose and complete enough, including those above prescribed, to make in all *one hundred and twenty hours* of credit.

GRADUATE COURSES

In Pharmacology, Bacteriology, and Physiological Chemistry.—Graduates of the school are given opportunity to pursue advanced work in these studies. See page 206 for courses in Bacteriology and Physiological Chemistry, and page 206 for courses in Pharmacology, which are recommended to graduate students.

For the Degree of Master of Science in Pharmacy.—Advanced courses of study are offered in the several branches taught in the school, suitable for graduates who wish to earn the degree of Master of Science in Pharmacy. This degree is conferred upon students who already hold the degree of Bachelor of Science in Pharmacy, and who have pursued for at least a year an approved course of graduate study under plan A or B, as explained on pages 218 to 220.

FELLOWSHIPS AND SCOLARSHIPS

Frederick Stearns & Co. Fellowship.—This Fellowship in pharmaceutical research has been maintained since 1895 by means of gifts made for this purpose by Messrs. Frederick Stearns & Company, of Detroit. The income of the fellowship at present is three hundred and fiftv dollars a year. In 1909-1910 the research was on the chemistry of "The Creosote Bush" and upon "Aspirin and Acetyl Salicylic Acid." Appointments to the fellowship are made by the Board of Regents, on recommendation of the Faculty.

The Prescott Memorial Scholarship.—Alumni and friends of the School of Pharmacy are providing a permanent memorial to the late Doctor Albert B. Prescott in the form of a fund from which loans are to be made to worthy students to assist them in meeting the expenses of securing a pharmaceutical education. The fund is already sufficiently large to be available for this purpose, several loans having been made during the past year. Full information concerning the conditions under which loans are made can be obtained by addressing the Dean of the School of Pharmacy.

BOTANICAL GARDEN

In the botanical garden, the principal orders of flowering plants are cultivated, together with the most important of the medicinal species. There are also experimental plantations, where drugs are grown for chemical and pharmacological investigation.

LITERARY, BOOKS OF REFERENCE, AND TEXT-BOOKS

The school has an extensive library, the main portion of which is shelved with the General Library of the University (see page —). It contains complete sets of the journals, the original repositories of the sciences related to pharmacy, as well as the current periodicals of the profession, encyclopædias, and hand-books of chemistry and pharmacy, and the latest works of value in study.

A working library, in a reading alcove of the chemical building, is provided with more than a thousand volumes for immediate reference, duplicates of those in the General Library. These books are in constant use by students in connection with their laboratory work, and in preparing for their recitations. Files of current numbers of the journals of chemistry and of pharmacy are also kept in the reading-room.

Text-books can be obtained in the book stores in this University town at lower rates than those ordinarily prevailing in the general trade of other cities. Of the following list of books, those printed in italics must be provided by each student; the others are optional:

General Chemistry, *Alexander Smith,* Bigelow's Synopsis. Qualitative Analysis, *Prescott and Johnson, Morgan.* Quantitative Analysis, *Olsen.* Pharmacy, *U. S. Pharmacopoeia, National Formulary, Stevens.* Incompatabilities, *Ruddiman.* Arithmetic of Pharmacy, *Stevens.* Botany, Kraemer. Pharmacognosy, *Culbreth,* National Dispensatory, *Kraemer.* Organic Chemistry, *Perkins and Kipping.* Organic Analysis, *Allen,* Prescott, Lyons. Pharmacology, Cushny.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *forty-five dollars;* for all others, *fifty-five dollars.*

Graduation Fee.—For all alike, *ten dollars.*

Laboratory Expenses.—These vary with the prudence and economy of the student, the average amount being about one dollar and twenty cents a week.

For additional information in regard to fees and expenses, see pages 71 to 73.

Homœopathic Medical College

A special Announcement giving further details in regard to this college is published annually. For copies of this Announcement, or for other information relating to the College, address Dr. W. A. Dewey, Secretary of the Faculty, or Dr. W. B. Hinsdale, Dean, Ann Arbor, Michigan.

THE Homœopathic Medical College, established as a Department of the University in 1875, offers superior advantages to students desiring to secure a thorough education in medicine and surgery, especially from a homœopathic standpoint. It has commodious buildings on the University campus in the immediate vicinity of its well equipped modern hospital, which is one of the finest structures connected with the University.

The college year extends from the Tuesday preceding the first Thursday in October to the last Thursday in June (October 4, 1910, to June 29, 1911).

REQUIREMENTS FOR ADMISSION

Every applicant for admission to the Homœopathic Medical College must be at least seventeen years of age, and must present to the Faculty satisfactory evidence of good moral character.

Women are admitted, as to all other departments of the University, on the same conditions as men.

ADMISSION ON CERTIFICATE

Matriculates in a regular course in the Department of Literature, Science, and the Arts, graduates of literary colleges of good standing, graduates of approved diploma schools and of other high schools of equal standing, and those who hold certificates from the Michigan State Board of Registration in Medicine or the Boards of other states whose requirements are of equal grade, are admitted without examination on presentation of proper evidence to the Dean of the Faculty. Residents of the State of Michigan, or those contemplating registration under the Michigan laws, will observe the following, which is taken largely from the regulations of the State Board of Registration:

A *Count,* as given in the table below, is the measure of work completed successfully in a secondary or high school or other school of equal grade and rank, pursued an entire year of 36 weeks, in one weekly recitation period of not less than 45 minutes. It will be observed that at least *Sixty Counts* are required in all and that as many as 35 of these Counts must be from the group marked "Required Studies;" the remaining 25 Counts may be selected from the "Elective Group." The required subjects and minimum Counts therein are, English, 10 Counts; Mathematics, 10 Counts; Latin, 10 Counts; Physics, 5 Counts. The student may select all his 60 Counts from these subjects according to the scale given in the following detail. It does not often occur, however, that this is done; the Elective Studies are drawn upon freely in completing the 60 Counts.

A student who is not able to present the full number of Counts may be admitted with conditions, provided he is not lacking more than fifteen Counts. He must remove such conditions before entering upon his second year. The lacking subjects may be made up either in the University or in the Ann Arbor High School. The High School affords excellent opportunity for those who are deficient in entrance requirements.

DETAIL OF ACADEMIC (SECONDARY) WORK

Furnished by the Secretary of the Michigan State Board of Registration in Medicine.

Total number of Counts, 60.

REQUIRED GROUP. MINIMUM, 35 COUNTS

Required Studies—	Credits Accepted Minimum Counts	Credits Accepted Maximum Counts
English	10	20
Mathematics	10	20
Latin	10	20
Physics	5	5
Totals	35	65

ELECTIVE GROUP. MAXIMUM, 25 COUNTS

Elective Studies—	Minimum Counts	Maximum Counts
Greek	8	10
French	8	10
German	8	10
Spanish	8	10
History	4	15
Chemistry	5	5
Botany	2	5
Zoology	2	5

Sometimes Botany and Zoology are studied as Biology; when so studied they can not be reckoned as additional counts.		
Physiology and Hygiene	2	5
English Literature	4	5
Trigonometry	2	2
Physical Geography	2	5
Drawing	2	2
Total Elective	25	

SCOPE OF THE PREPARATORY WORK

The descriptive outline of the amount of preparation expected in each of the above named subjects is identical with that given for the Department of Literature, Science, and the Arts on pages 74 to 82.

All matriculates who have the intention of practicing medicine in the State of Michigan must present their credentials to the Michigan State Board of Medical Examiners, as well as to the Faculty of the Department. The minimum legal requirements for admission to a medical school in this State are defined by statute.

ADMISSION ON EXAMINATION

Applicants for admission who do not possess the diploma or certificate described in the preceding statement are required to pass examinations in the required and elective subjects to satisfy the requirements there laid down. Examinations for admission are conducted by the Department of Literature, Science, and the Arts, in accordance with the schedule on page 83.

Examinations are held by the Michigan State Board of Medical Examiners simultaneously at Ann Arbor, Detroit, and Grand Rapids, beginning on the second Tuesday of September of each year. Certificates of having passed these examinations are also accepted for admission in lieu of the University entrance examinations.

Before admission to examination, every applicant is required to present to the Registrar of the Faculty the Treasurer's receipt for the payment of the matriculation and the annual fee. It will, therefore, be necessary for him to apply to the Registrar of the Department, register his name as a student in the Homœopathic Medical College, and pay his fees to the Treasurer. In case of rejection, the money paid preliminary to examination will be refunded.

The applicant is advised to call in person upon the Dean or Registrar immediately after arrival in Ann Arbor.

ADMISSION TO ADVANCED STANDING

Persons who have studied medicine elsewhere may be admitted to advanced standing upon evidence of proficiency in the studies which have already been pursued by the class to which they seek admission.

COMBINED LITERARY AND MEDICAL COURSE

Students desiring to obtain the degrees of Bachelor of Arts in the Department of Literature, Science, and the Arts, and of Doctor of Medicine in the Homœopathic Medical College, may, by enrolling on the combined Literary and Medical Course, shorten from eight years to seven the time required to earn the two degrees. This privilege is open only to students who during their first three years have maintained a uniform record of good scholarship. The work is under the direction of a Committee of five members representing the Department of Literature, Science, and the Arts, and the Homœopathic Medical College. With the consent of the Committee in charge, a candidate for the degree of Bachelor of Arts, who has been a student in the Department of Literature, Science, and the Arts for at least one year, and has 90 or more hours to his credit, of which at least 30 hours have been earned in the Department of Literature, Science, and the Arts of this University, may enroll upon the combined course; that is, while continuing his registration in this Department he may also register in the Homœopathic Medical College, provided the work he has already completed includes a sufficient number of the courses enumerated below to enable him to complete within one year the specific requirements described in the following paragraphs.

Students desiring to enter upon the combined Literary and Medical Course must, in May of the year of residence preceding the double registration, file with the Registrar of the Department of Literature, Science, and the Arts a formal application made out upon a proper blank to be obtained from that office.

When the student so registered in the two Departments has completed the first year of the Course in Medicine, and not less than 90 hours in the Department of Literature, Science, and the Arts, he will be recommended for the degree of Bachelor of Arts, provided his work has included the following courses:

Rhetoric, 6 hours, including Courses 1 and 2.
French and German, 16 hours of either one, and 8 hours of the other.
English, 6 hours.
Psychology, 6 hours.
Physics, 10 hours, including two hours of laboratory work.
Chemistry, general and organic, 8 hours for students presenting Chemistry for entrance, otherwise 12 hours.
Physical Chemistry, 4 hours.
Biology, 8 hours.
Zoology, 6 hours.
Total, 78 or 82 hours.

Suggested electives: Latin or Elementary Greek, 8 hours; History, or Political Economy, or Philosophy, 8 hours; Qualitative Analysis, 4 hours; Organic Chemistry, 5 hours.

Students enrolling prior to September, 1913, who so desire, may obtain the degrees of Bachelor of Science and Doctor of Medicine in six years by complying with the requirements above set forth, except that the credit required from the Department of Literature, Science, and the Arts shall be 60 hours, instead of 90, and shall include the following courses:

Rhetoric, 6 hours, including Courses 1 and 2.
French or German, 16 hours.
Physics, 8 hours.
Chemistry, general and organic, 8 hours for students presenting Chemistry for entrance, otherwise 12 hours.
Biology, 8 hours.
Total, 46 or 50 hours.
Electives are suggested from the courses before mentioned.

In order to meet exceptional cases, the Committee shall have power to adjust the foregoing requirements by allowing substantial equivalents.

COURSES OF INSTRUCTION

DESCRIPTION OF COURSES

The university plan is to provide instruction in one department that may count for credits in another department, thereby avoiding the duplication of teachers and courses. Students studying six years receive much of their instruction in the Department of Literature, Science, and the Arts, as previously indicated. Four-year students also receive their instruction in Chemistry in that Department and their instruction in Medical Jurisprudence in the Department of Law. Much of the laboratory and preliminary scientific training is taken with the students in the Department of Medicine and Surgery. The subjects which are under the immediate charge of members of the faculty of the Homœopathic Medical College are here outlined.

Materia Medica and Therapeutics.—Materia medica is taught as a natural science. Three lectures are given weekly, based as far as possible on studies of the original provings, paying special attention to the genius of each drug, its characteristics, and its relationship to other drugs. The physiological action of drugs, as ordinarily understood, is duly considered.

Systematic instruction in the principles and philosophy of Homœopathy is a natural feature. The course is given to the whole body of students, beginners as well as the more advanced, in order to fix in their minds the underlying principles of the science of homœopathic practice.

A thorough laboratory course in drug proving is a special feature of this college. Students are required to do a certain amount of original work in drug pathogenesy under the supervision of the Director of the Pathogenic Laboratory.

The Principles of Medicine.—The principles of medicine are taught in a separate course setting forth the scientific explanation of disease and the principles upon which a system of cure must be constructed. Attention is given to historic medicine and the various systems that have been in practice as a means of attempted cure. In the medical clinic the idea is never lost sight of that the function of the physician is to cure the sick, and that to accomplish this end accurate prescribing is of the highest importance.

Theory and Practice.—The instruction in theory and practice is didactic and clinical. The subject is divided into separate courses covering all the ground, both general and special, with which a physician in general practice must be familiar. In this connection a special course in diseases peculiar to childhood, and in the feeding of infants and invalids, is given. The aim is to make the student, by applying his knowledge of pathology, a good diagnostician, and, by his knowledge of materia medica, a good prescriber. In the clinics especial attention is given to dietetics and similar means of treatment.

Medical and Physical Diagnosis.—Diagnosis is taught as a separate branch. The subject occupies one hour a week throughout two entire years.

In addition to regular class-room work and recitations, the students are divided into sections and examine the patients in the hospital, under the direction of the instructor in charge. Diagnosis clinics, in which all diagnostic means are employed, are held regularly.

Surgery.—The work in surgery follows the following outline:

1. A course of lectures to students in the second year upon minor surgery and bandaging.
2. A course upon the principles of surgery.
3. A complete course upon operative surgery, fractures and dislocations.
4. A demonstration course, using animals, dogs mostly, for operations and justifiable surgical experiment. This is given to the third year students to prepare them especially for service in the hospital operating room.
5. Operations upon the cadaver; a sufficient number of subjects are provided by the authorities without expense to the class. Each candidate for graduation is required to demonstrate his knowledge of operative surgery in this practical manner.
6. Before and after treatment of surgical cases, using a text book especially prepared for the purpose by the professor of surgery.

This is a quiz course.

Students are assigned cases to diagnose and to present to the class. Under proper direction, they are required to make the necessary preparations for operations, and to assist, when assistance is necessary. Advanced students, under the immediate supervision of the surgeon or his assistant, treat patients upon whom operations have been made.

Gynecology.—Gynæcology is taught in three courses:—

1. Minor gynæcology, dealing with the methods of diagnosis, the use of instruments used in operations and the technique of operations themselves.

2. Major gynæcology, dealing with the graver aspects of the subject such as adventitious growths, extensive injuries, methods of making gynæcological examinations and the medical and operative treatment indicated.

3. Clinical instruction. The hospital furnishes a superabundance of cases in all kinds of diseases peculiar to women. Each week several major and many more minor operations are performed. The students in this clinic, the same as in general surgery, prepare patients for operations, assist at the operating table, give anæsthetics, and have the after-care of cases and do the necessary surgical dressings, under the direction of the professor himself or of his assistant.

Obstetrics.—Students are taught the physiology of gestation, the pathological conditions that may be encountered in that period and in the puerperium, the principles of cleanliness, the mechanics of parturition and the manipulation of instruments. In the sub-clinics they familiarize themselves with the various methods of practicing "touch," palpation, obstetric auscultation, etc.

Cases in obstetrics are assigned to each senior for his especial delivery and personal attendance. The many patients that come to the hospital from various parts of the state are utilized to the best possible advantage.

Ophthalmology.—Regular lectures on this important specialty, amply illustrated from the abundance of clinical material at the disposal of the Faculty, are given in the fourth year. The eye clinic forms one of the most interesting features of the clinical work, and affords the class every facility for a thorough, practical study of all the diseases of the eye that come under the observation of the physician. Students have cases assigned them for dressing and treatment, and thus acquire practical skill and knowledge in diagnosis, and in the use of the various instruments. A special course is given in the correction of errors of refraction.

Otology, Rhinology, and Laryngology.—The basis of the instruction, as in other departments, will be the material, that has always been sufficient, afforded by the in- and out-patient departments of the hospital. There are, at every clinic, from twenty to thirty patients awaiting medical, topical, or surgical treatments of diseases of the ear, nose, and throat. The students are required to make instrumental as well as other examinations, to make diagnoses and to indicate the lines of treatment under the supervision of the professor. Regular courses of lectures upon these subjects are given to third and fourth year students.

Mental and Nevous Diseases.—A special course of lectures on mental diseases is given by Dr. OSCAR R. LONG, Superintendent of the State Asylum. Every effort is made to make this department of study as complete as possible. There is an abundance of clinical material to demonstrate all the more frequent forms of nervous diseases as well as many of the rarer ones.

Diseases of Children.—A full course of instruction is given in this subject.

Dermatology.—The course in Dermatology consists of lectures, quizzes, and a weekly clinic which is well supplied with material. Photographic, lithographic, and stereopticon plates are used in the differential demonstrations.

The department is well equipped with the latest Roentgen Ray and other electrical appliances, and practical instruction is given in their general and special adaptability to the treatment of malignant diseases of the skin.

Genito-urinary Diseases.—The instruction includes two distinct courses:

1. A quiz and demonstration course, with weekly recitations.

2. A clinic which is made up of the cases in the hospital requiring either medical or operative treatment. This clinic is quite distinct from any of the other surgical or medical departments, and is given by the professor who also teaches Dermatology, a subject many times involving genito-urinary problems.

Toxicology.—The class is given a practical knowledge of the different poisons and their antidotes. Especial attention is given to the physiological action of drugs and chemicals. The relation existing between drug action in producing abnormal conditions and diseases as they arise from natural or idiopathic causes is constantly kept before the student. This is a new course and a very important one. It really includes very much more than the subject of poisons and antidotes. Whenever a medico-legal opinion is pertinent, it is presented. Illustrations of a practical nature are introduced and experiments on animals employed.

Pharmacy and Pharmacology.—These subjects are largely covered in the departments of Materia Medica, Toxicology and in the pathogenetic laboratory. Special instruction is also given upon the origin, preparation and administration of remedies.

Drug Proving.—A practical laboratory in Pathogenetics has been instituted in the hospital, with a special director in charge. Volunteer students, accepted with reference to their physical merit, are put through severe tests under the constant observation of the Director. A diet-table is provided for the provers, free of cost to themselves, that entire control may be had over them while they are testing drugs. As a result of the work done in this laboratory the College has been able to publish a number of instructive, original reports.

Dietetics.—A course is given in which the problems of food in relation to health and disease are discussed. The feeding of invalids and infants is given special attention. In the clinics, whenever the question of the effects of diet, the preparation of foods and drinks and their proper administration can be profitably considered, the most is made of the opportunity. There is in the hospital a diet kitchen, in charge of a scientific dietitian, in which the special diet lists are prepared and from which they are served. The senior students in charge of cases, under proper supervision, are required to make out orders for the feeding of their patients and to observe the preparation of the food.

Electro-therapeutics.—Whenever electricity can be made useful in the treatment of diseases, the most is made of it. The electrical equipment in the hospital is adequate to the ordinary applications of electricity for therapeutic effect. A course of instruction with clinical application is given to the fourth year men.

Demonstration Courses in the Specialties.—Before graduation each student is required to do actual work in demonstrating his medical and surgical skill. By operating upon the cadaver and upon animals; by manipulation of manikins and models; by actual dressing of wounds and bandaging; by thorough drill in the practical use of the ophthalmoscope, the laryngoscope, the test case, and in the fitting of glasses; by the use of the microscope and the spectroscope; by the making of tinctures and dilutions; by bedside demonstrations and examinations; by actual prescribing; by these methods the students become practical, and are prepared to make successful physicians. The classes are divided into sections, and each individual has his share of actual work. For these demonstration courses there is no extra expense. Students assist at operations and take turns in ward visiting. They are also required to take, and arrange in writing, the histories and to keep the records of patients that are assigned to them in rotation.

These histories are read in the classes, reviewed and corrected by the clinician and preserved as permanent records of the hospital.

ORDER OF INSTRUCTION

The following summary shows the arrangement of the instruction in the subjects named for the several years and semesters of the course. This order is subject to changes, as adjustments of courses and lectures can not always be made to conform to an invariable schedule:

MATERIA MEDICA

1. Materia Medica. Lectures and recitations. Three times a week. Third and fourth years. Professor DEWEY.
2. Principles of Homœopathy. Lectures and recitations. Once a week for a semester. First and second years. Professor DEWEY.
3. See Theory and Practice, Courses 4 and 6.

THEORY AND PRACTICE AND DIAGNOSIS

1. Principles of Medicine. Lectures and recitations. Once a week. First year. Professor HINSDALE.
2. Medical Diagnosis. Recitations and demonstrations. Twice a week. Second and third year. Dr. MELLON.
3. Practice. Lectures and quizzes. Once a week. Third and fourth years. Professor HINSDALE.
4. Treatment. Lectures and quizzes. Once a week. Fourth year. Professor HINSDALE.
5. General Medicine. Clinical course. Two consecutive hours. Once a week. Third and fourth years. Professor HINSDALE.
6. Bedside Studies, Laboratory Diagnosis and Prescribing. Every day from 8 to 9 A. M. Fourth year students in parties of two. Professors HINSDALE and DEWEY, and Dr. HASTINGS.

MENTAL AND NERVOUS DISEASES

1. Lectures and Clinics. Once a week. Third and fourth years. Professor DEWEY and Dr. LONG.

SURGERY

1. Principles of Surgery. Once a week. Second year. Dr. CLARKE.
2. Lectures and Recitations. Three times a week. Third and fourth years. Professor SMITH.
3. Surgical Demonstrations Upon Cadaver. Class in sections. All day, for a week or until work is completed. Second semester. Fourth year. Professor SMITH and Dr. CLARKE.
4. Surgical Operations Upon Animals. Two hours a day until course is completed. Third year. Second semester. Professor SMITH and Dr. CLARKE.
5. Surgical Clinic. Twice a week. Third and fourth years. Professor SMITH.

GYNECOLOGY AND OBSTETRICS

1. Minor Gynecology. Lectures and recitations. Once a week. Third year. Dr. A. B. SMITH.
2. Major Gynecology. Lectures and recitations. Twice a week. Third and fourth years. Professor KINYON.
3. Obstetrics. Lectures and recitations. Twice a week. Third and fourth years. Professor KINYON.
4. Gynecological Clinic. Twice a week. Third and fourth years. Professor KINYON.

OPHTHALMOLOGY

1. Recitations. Once a week. Third year. Second semester. Dr. RIDGE.
2. Advanced Work. Lectures and quizzes. Twice a week. Fourth year. First semester. Professor MYERS.

3. Refractions. Class in sections. Fourth year. One hour, twice a week. Professor Myers and Dr. Ridge.
4. Clinic. General and Operative. Two hours, twice a week. Professor Myers.

OTO-LARYNGOLOGY

1. Recitations. Once a week. Third year. First semester. Dr. Ridge.
2. Lectures and Quizzes. Fourth year. Twice a week. Second semester. Professor Myers.
3. Clinic. Two hours. Twice a week. Professor Myers.

DERMATOLOGY

1. Lectures and Recitations. One hour a week. Junior class. Both semesters. Assistant Professor Barrett.
2. Clinic. Two hours a week. Junior and senior classes. Both semesters. Assistant Professor Barrett.

GENITO-URINARY DISEASES

1. Lectures and Recitations. One hour a week. Junior class. Both semesters. Assistant Professor Barrett.
2. Clinic; General and Operative. Two hours a week. Junior and senior classes. Both semesters. Assistant Professor Barrett.

ELECTRO-THERAPEUTICS AND RADIOGRAPHY

1. Lectures and Recitations. One hour a week. Senior and junior classes. Second semester. Assistant Professor Barrett.
2. Clinic. Two hours a week. Senior and junior classes. Both semesters. Assistant Professor Barrett.

SPECIAL PATHOLOGY

Laboratory Examinations and Analyses. Every afternoon. Class in sections. Six weeks. Two hours. Third year. Dr. Hastings.

HOSPITAL LABORATORY

Every morning. Specimens from hospital clinics. Class in sections. One hour. Dr. Mellon.

PHARMACY

1. Lectures and Recitations. Once a week. Second semester. Second year. Professor Dewey.

SUBJECTS PURSUED IN CONNECTION WITH CLASSES IN OTHER DEPARTMENTS OF THE UNIVERSITY

Chemistry (General, Organic, Physiological); Physics; Anatomy; Osteology; Histology; Embryology; Physiology; Bacteriology; Hygiene; Medical Jurisprudence; Organic Evolution; Botany. The instruction in these subjects is given in connection with classes in the Department of Medicine and Surgery, the Department of Literature, Science, and the Arts, and the Department of Law. The nature, extent, and arrangement of these courses may be seen by reference to other pages of this Calendar.

INSTRUCTION FOR WOMEN

The course of instruction for women is in all respects the same as that for men. Practical anatomy is pursued by the two sexes in separate rooms; but in the lectures, in public clinics, in the laboratories, and in various class exercises, it is found that both sexes may attend with propriety at the same time.

EXAMINATIONS

At the end of each semester examinations (written, oral, or both written and oral) are held on all subjects taught during the semester, and each student's grade is entered upon the records of the Faculty. Students *"conditioned"* cannot apply for another examination in the same subject until the close of the next course or semester, except that a student conditioned at the close of the college year may ask for another examination in the first two weeks of the following year. Students reported *"not passed"* are required to take the course over again before applying for another examination.

REQUIREMENTS FOR GRADUATION

To receive the degree of Doctor of Medicine, a student must be twenty-one years of age and possess a good moral character. He must have completed the required courses in laboratory work, and have passed satisfactory examinations on all the required studies included in the full course of instruction. He must have been engaged in the study of medicine for the period of four years, the last of which must have been in this college.

GRADUATE COURSES

Medical science has made such rapid progress during recent years that graduates of a short time ago feel the necessity of returning to medical centres for supplementary study. The laboratories and special courses of this college offer superior advantages to graduates.

The nature of the work arranged for graduate students in hygiene, bacteriology, pathology, physiology, histology, chemistry, and anatomy may be learned by reference to page 291.

In the practical branches, such as materia medica, physical diagnosis, surgery, ophthalmology, otology, laryngology, obstetrics, gynecology, dermatology, electro-therapeutics, and genito-urinary diseases, graduate instruction may be had, by special arrangement with the professors in charge, in connection with the demonstration courses given in the last two years.

OTHER FACILITIES FOR INSTRUCTION

Museums and Laboratories.—The museums of anatomy and materia medica, comprising thousands of specimens, models, and charts, afford the best means attainable for the close study of anatomy, physiology, pathology, and pharmaceutics. The general and special cabinets of the University, containing about 255,000 specimens, are also open freely to all students. (Compare pages 46 to 51.) The facilities for the study of chemistry, afforded by the chemical laboratory, are not excelled in any medical college in this country, and the arrangements for the laboratory work are such that medical students, in classes, and working under the direction of the professors in charge, receive practical instruction in the courses in qualitative chemistry and in the analysis of fluids and secretions of the body, a knowledge of which has become absolutely indispensable to the successful physician. The histological laboratory, amply supplied with microscopes, sphygmographs, stereopticon, etc., offers rare facilities for the prosecution of practical work in experimental physiology and histology. The hygienic and anatomical laboratories are models of convenience, affording facilities for instruction in hygiene and in practical anatomy unsurpassed by those of any other institution of learning in the United States. For a fuller description of the laboratories of the University used by homœopathic students in common with students of other departments, see pages 51, to 55 and 291 to 295.

Pathogenetic Laboratory.—A laboratory of experimental pathogensy, in the Homœopathic Building, is equipped with the necessary apparatus for experimentation with medical substances on the healthy human body, a special feature of this college. Provings are made, and each student is required to do a certain amount of original work and research in the pathogenic field. A complete course in homœopathic pharmaceutics is also given in this laboratory.

Libraries.—The General Library of the University (see page 43) is open to the free use of students. Important additions have recently been made to the collection of works on Homœopathy. A large number of publications, domestic and foreign, are received regularly and kept on file in the library reading room.

Other Facilities.—Students in the college have the privilege of attending the scientific and philosophical lectures, collateral to medicine, given in the Department of Literature, Science, and the Arts. For a description of the gymnasiums, and the conditions on which they are open to students, see page 59.

THE UNIVERSITY HOMOEOPATHIC HOSPITAL

The University Homœopathic Hospital stands a little to the northeast of the University campus. It has a frontage of two hundred feet, and the ground plan resembles, in general, the letter T. Each end of the top line of the letter represents a ward, and the base is occupied by the operating and the clinic rooms. The building extends back over the brow of a hill, and a rear view shows five stories in the clear. The general wards are planned each for sixteen beds. Sun parlors, one in front of each ward, are available as sitting-rooms for patients able to leave their beds. The plumbing is elaborate and of thorough construction. The building is heated by steam, and the ventilating system is guaranteed to change the air in the entire building every five minutes.

There are separate wards for children and for obstetrical patients. The facilities for treating obstetrical cases have been largely increased. During the past year each senior student attended several cases of confinement.

The hospital is furnished with electrical appliances, and, under direction, skilled attendants apply electrical treatment. The junior and senior students receive special instruction in this line.

Medical, surgical, gynecological, neurological, and ophthalmological clinics are held daily in the spacious amphitheatre. Examinations of patients are made by the professors in charge, and by students under the direction of professors and assistants; prescriptions are given; and surgical operations are performed, in the presence of the class. The several clinics are held on separate days, of which the profession throughout the State will be notified.

Much attention is paid to physical diagnosis, and the abundance of clinical material furnishes many interesting cases. Students are required to take the history of patients, and, under proper supervision, make personal examination and prescribe remedies. It is the aim of the Faculty to make clinical instruction systematic and thorough.

The hospital is kept open for patients during the college year, and also the summer vacation. The expenses to patients are only for their board, for unusual appliances or special nursing, and for medicines, the services of the Faculty being rendered gratuitously to those made available for clinical instruction.

Patients who desire to enter the hospital are requested to write to the Medical Superintendent to ascertain if there is room for their accommodation, and to obtain a circular giving more fully the rules governing admission.

Training School for Nurses.—In connection with the Hospital there are two nurses' homes, and a training school under the charge of a competent and experienced principal. The term of study and service extends through three years, at the expiration of which time those who have proved competent and trustworthy are granted certificates of graduation. For further information in regard to this school, application may be made to Miss Myrta Woodson, Principal, Ann Arbor, Michigan.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance, and no student can select his seat until after such payment. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *forty-five dollars;* for all others, *fifty-five dollars.*

Graduation Fee.—For all alike, *ten dollars.*

Graduate Courses.—A fee of *ten dollars* is charged graduate students for each course taken. Graduate students who pursue laboratory courses are also required to pay the ordinary laboratory expenses of such courses.

Laboratory Expenses.—In the laboratories, the students pay for the material used, and the expenses vary somewhat with the care and economy practiced. The required laboratory courses cost approximately as follows:

Anatomy	$21.00
Chemistry	15.00
Bacteriology	15.00
Physiological Chemistry	15.00
Histology	10.00
Pathological Histology	10.00

The total amount of fees paid to the University during the whole four years' course, for matriculation, incidental expenses, materials used, and graduation, is, for Michigan students, about $280.00; and for others, about $335.00, varying a little with the student's actual laboratory expenses.

For additional information in regard to expenses, see pages 71 to 73.

Students arriving in Ann Arbor, and desiring further information, should apply at the office of the Dean. The office will be open daily during the latter part of September. Members of the Faculty, or other persons competent to give information, will be in attendance.

College of Dental Surgery

A special Announcement giving further information in regard to this Department is published annually. For copies of this Announcement, or for other information relating to the college, address The Dental College, Ann Arbor, Michigan.

The College of Dental Surgery was established as a Department of the University in 1875. The college year extends from the Tuesday preceding the first Thursday in October to the last Thursday in June (October 4, 1910, to June 29, 1911). The lectures close about June 20 in order to allow for the final examinations before Commencement.

REQUIREMENTS FOR ADMISSION

Applicants for admission must be at least seventeen years of age, and must have completed the requirements for admission, as is here described. These requirements, which are the equivalent of a four year course in an approved high school, are stated in units, a unit meaning the equivalent of five recitations a week for one year in one branch of study. The subjects from which choice may be made, and the number of units which will be accepted in each subject, are as follows:

English Composition and Literature, 3 or 4 units.
Mathematics (Algebra and Geometry), 2 or 3 units.
Physics, 1 unit.
Chemistry, 1 unit.
Latin, 2, 3, or 4 units.
History (General, United States, and Civics), 1, 2, or 3 units.
Biology (Botany and Zoology), 1 unit.
Physiography, ½ or 1 unit.
German, 2, 3, or 4 units.
French, 2, 3, or 4 units.
Trigonometry, ½ unit.

Manual Training, or One Year of Pupilage in a Dental Office, 1 unit. (Not more than 4 units may be offered in German and French.)

Fifteen units are required for admission. These fifteen units must include three units in English, two units in Mathematics (elementary algebra and plane geometry), one unit in Physics, one unit in Chemistry, and two units in Latin. The other six units may be selected by the applicant from the foregoing list. The scope of the preparatory work is described on pages 75 to 82.

Applicants who cannot fulfill all these requirements may enter conditioned in not more than two units. These conditions must be removed by examinations at the times scheduled on pages 82 and 83 before entering upon the second year of work.

Graduates of approved high schools, who present recommendations from the principal, are admitted without examination in the units covered by the diploma and recommendatoin.

All other applicants must pass examinations in the fifteen units. These examinations are conducted by the Department of Literature, Science, and the Arts, in accordance with the schedules printed on pages 82 and 83.

REGISTRATION

Before admission to the examination, every student is required to present to the Dean of the Faculty his admission credentials before he can pay any fees. The matter of admission will be greatly facilitated by students sending their credentials to the Dean before leaving home. A special form for the purpose can be had on request to the Dean.

In order to receive credit for a full course, students must enter within ten days after the opening of the college year. It is very important that first-year students be present promptly at the opening of the year.

ADMISSION TO ADVANCED STANDING

Persons *qualified for admission* to this college who have studied dentistry in other recognized schools for at least one year, may be admitted to advanced standing, after passing a satisfactory examination in the studies which have already been pursued by the class to which they seek admission.

ASSIGNMENT OF SEATS

Students are assigned seats in the lecture room, places in the dental laboratory, and chairs in the operating room, in the order in which they matriculate and register; and each student is expected to occupy the places so selected during the session.

COURSES OF INSTRUCTION

In the arrangement of the course, the aim is to accommodate and benefit students who desire a thorough dental education such as shall meet the expectation of the dental profession, and best serve the interests of the public. To this end a graded course of study is combined with a repetition of such lectures only as will avoid the confusion incident to the simultaneous presentation of too many parts of the general subject. The aim is to dismiss no subject until its relations to other parts of the course can be thoroughly appreciated.

*SCHEDULE OF STUDIES**

FIRST YEAR

FIRST SEMESTER

Subjects	*Hours*
General Chemistry,	85
Prosthetic Technics, Lectures and Laboratory,	500
Qualitative Chemistry,	180

SECOND SEMESTER

Subjects	*Hours*
Organic Chemistry,	65
Descriptive and Regional Anatomy, Lectures and Laboratory,	180
Prosthetic Technics, Lectures and Laboratory,	340
Histology, Lectures and Laboratory,	180

SECOND YEAR

FIRST SEMESTER

Subjects	*Hours*
Prosthodontia, Lectures,	100
Bacteriology, Lectures and Laboratory,	250
Operative Technics, Lectures and Laboratory,	200
Dental Anatomy,	51

SECOND SEMESTER

Subjects	*Hours*
Physiology,	85
Dental Materia Medica,	100
Pathology,	34
Crown and Bridge Lectures,	50
Operative Clinic,	400

THIRD YEAR

FIRST SEMESTER

Subjects	*Hours*
Dental Therapeutics,	34
Oral Surgery, Lectures and Laboratory,	51
Orthodontia,	34
Crown and Bridge Lectures,	17
Orthodontia Technics,	34
Porcelain Technics,	51
Operative Dentistry, Clinical Lectures,	34
Operative Principles,	34
Pathology	34
Prosthodontia and Orthodontia Clinic,	160
Operative Clinic,	340

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*The column of hours gives the total number of hours of work required for each semester. The actual teaching weeks, exclusive of vacations and holidays, are 34 for the season, or 17 for each semester.

Subjects	SECOND SEMESTER	*Hours*
Dental Therapeutics,		34
Oral Surgery, Lectures and Clinics,		51
Crown and Bridge Work,		17
Dental Ethics, History and Literature,		34
Operative Dentistry, Clinical Lectures,		34
Operative Principles,		34
Prosthodontia and Orthodontia Clinic,		160
Operative Clinic,		340

DESCRIPTION OF COURSES

Anatomy.—Anatomy is studied didactically and practically, and is taken with the medical classes in the Department of Medicine and Surgery (page 284). Special attention is given to students of dentistry on the anatomy of the head, face, neck, thorax, abdomen, and their contained viscera, and on the nervous and vascular systems. In practical anatomy the same regions are dissected. The work in anatomy also includes a course of lectures on comparative dental anatomy by a member of the Dental Faculty. The large odontological museum, the gift of the late Professor Ford, which has recently been increased by a large gift from Dr. William Mitchell, of London, England, offers exceptional opportunities for this work. There is also a course in human dental anatomy, which is in the nature of a series of quiz and laboratory exercises on technical anatomy; in cutting and studying the structure of human teeth in sections.

Embryology and Histology.—In general embryology and histology a combined lecture and laboratory course is given, in which the student not only acquires a knowledge of the principal structures and tissues of the animal body, but also becomes familiar with the manipulation of the microscope and the preparation of tissues.

Chemistry.—In chemistry students are required to attend separate lecture courses on general and organic chemistry, and also to take a laboratory course in analytical chemistry.

Physiology.—A full course of lectures in physiology is taken in the Department of Medicine and Surgery.

Bacteriology.—The course of bacteriology comprises lectures and laboratory work. In the laboratory the student becomes acquainted with technical methods and acquires experience in the biological study of the micro-organisms which are of special interest to the dentist.

Materia Medica and Therapeutics.—In dental materia medica and therapeutics a special course of lectures embraces the history, pharmacy, pharmacology, and therapeutics of all drugs and remedies used in the treatment of diseases occurring in dental practice, and includes a discussion of pain obtundents, local and general anæsthetics, and prophylactic remedies.

Pathology.—In dental pathology a course of lectures and laboratory work is given, which embraces a discussion of the various diseases which affect the teeth and mouth, and their etiology and treatment. Special attention is given to diseases which pertain especially to the practice of dentistry. Illustrative cases are shown to the class. All instruments, appliances, and methods that are of interest or value in this connection are exhibited and discussed.

Oral Surgery.—A course of lectures on clinical oral surgery embraces a consideration of diseases of the mouth and associated parts that are of special interest to the dentist, but which lie more within the province of the general surgeon for treatment. Illustrative cases are exhibited and discussed, and operations are performed before the class in a clinic once each week.

Operative Dentistry.—In operative dentistry the instruction is both didactic and practical. In the didactic course, which is preceded by a course in operative technics, a full presentation of approved methods, appliances, and materials used in filling teeth is given, together with the principles which form the basis of practice. This instruction is supplemented by practical instruction in the clinical operating room, which is under the personal supervision of the professors of operative and clinical dentistry and their assistants. Here each third-year student is required to spend twenty hours a week at the chair, operating for patients, and in this way verifying the principles taught and obtaining such manipulative training as will result in desirable preparation for skillful practice.

Prosthetic Dentistry.—In prosthetic dentistry the instruction is both didactic and practical. In the lectures the principles involved in the construction and application of artificial dentures, crowns and bridges, regulating devices, and continuous-gum and cleft palate work are fully discussed, and such methods as have proved valuable and worthy are advocated. In the practical department each student in the second and third years has opportunity and is required to construct and adapt to the mouth practical dentures for the restoration of lost dental organs.

The instruction in prosthetic technics embraces experimental construction of the various artificial dentures used to restore lost dental organs. It consists in taking impressions, making plaster models from impressions, making dies, swedging plates, grinding and adjusting teeth, soldering and finishing, vulcanizing and finishing plates, pouring and finishing cast metal plates, and constructing various styles of crowns, bridges, and regulating devices, with such instruction as will familiarize the student with the most approved methods of doing such work.

EXAMINATIONS

At the end of each semester examinations are held on all subjects taught during the semester. Students *conditioned* must remove the condition during the semester following the one in which it was received. No student who, at the end of a year, has failed to pass in two of the required subjects in his course is admitted to an advanced class during the first semester of the following year.

REQUIREMENTS FOR GRADUATION*

To be admitted to the degree of Doctor of Dental Surgery, the candidate must be twenty-one years of age, must possess a good moral character, must have devoted three years to the study of dentistry, and have passed all the examinations required in his course. Unless admitted to advanced standing, he must have attended three full years in this college, and he is advised to attend these consecutively.

GRADUATE COURSES

The purpose of the graduate course is to meet the requests of students for further opportunity to pursue the scientific branches of the regular college curriculum, and also to meet an often expressed wish on the part of practitioners to pursue some special scientific investigation, which has been entered upon at home, with limited resources in the way of books of reference, laboratory facilities, and apparatus and without the aid of instructors or advisers in associated sciences.

The graduate course is open only to graduates of this college who have made marked records in their undergraduate work, and to graduates of this and other colleges who have had at least two years of continuous practice since graduation, and who have published original articles of scientific value, which show a capacity on their part for continuing such work with credit.

The course of study is independent of, and additional to, the regular undergraduate work, and embraces only such topics as will aid in training men to carry on scientific researches in subjects associated with practical dentistry, or with dentistry in its scientific aspect.

The time required to complete the course prescribed for the advanced degree depends upon the diligence and capacity of the student, but at least a year's work is required in all cases.

Graduate students are required to pay the same annual fee as undergraduates, and those who have not previously been matriculated in this University are also required to pay the usual matriculation fee. The expenses of the laboratory courses vary according to the character of the work taken.

The degree of Doctor of Dental Science (D.D.Sc.) is conferred only upon graduate students who complete the prescribed course as outlined above, or a course embracing an equivalent amount of scientific work.

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*See footnote on page 349.

FACILITIES FOR INSTRUCTION

For general information relating to the University libraries, museums, laboratories, hospitals, and gymnasiums, see pages 43 to 57, 59 to 60, and 291 to 295.

Among the facilities of special interest to students of dentistry the following may be mentioned:

FORD-MITCHELL MUSEUM

The dental museum is supplied with a large number of anatomical, physiological, pathological, and histological preparations, including a series illustrating dentition from infancy to the completion of the process of the adult, and the normal changes through life to old age, and also illustrative of the dental and osseous tissues. Preparations, natural and artificial, greatly facilitate the study of the nervous and vascular systems. The design is to make available every practicable appliance in this direction.

The odontological collection is probably the largest and best of its kind to be found in any dental college in the world. It comprises the entire set of crania and odontological specimens presented by the late Professor Ford, and has been recently more than doubled in size and in value by the gift of the private collection of Dr. William Mitchell, of London, England, who has spent many years and large sums of money in bringing together material from all quarters of the world. Additions to this collection are desired, and gifts of material illustrating comparative odontology and typical or abnormal human teeth, will be gratefully received.

TAFT LIBRARY

A library of dental science (named in honor of the late Professor Jonathan Taft), containing almost every known work on this specialty, including an almost complete file of every dental journal published, is shelved in the dental building, where it is accessible to all students. A finely appointed reading room is connected with the library. Nineteen dental journals are regularly received.

TECHNIC LABORATORIES

The new Dental College Building contains two large technical laboratories accommodating one hundred twenty-five students each. They are fitted out with all new and modern appliances, such as:—Furnaces, soldering tables, rolling mills and electric lathes; appliances for the various manipulations of prosthetic dentistry, such as the construction of artificial dentures on gold, silver, aluminum, rubber, and other bases; appliances for the regulation of teeth and for the mechanical treatment of oral deformities; and facilities for the manufacture of instruments. Attention is given to the manipulation and management of the precious metals with reference to their use for dental purposes.

Each student is furnished a work bench for the instruments that he has to furnish for the prosecution of his work. If a student has any of these instruments it would be well to bring them; but it is more desirable to defer purchasing until the advice of the instructor in the college has been secured, as it is desirable that a complete and uniform outfit should be in the possession of each student. This outfit costs about forty dollars, and if taken care of will be a permanent investment, as the tools will all be necessary and useful in practice. These tools must be purchased at the beginning of the course, as they are required during the first as well as during the succeeding years.

DENTAL OPERATING ROOMS

The operating rooms are large, well-lighted, heated, and ventilated. The main room contains eighty modern operating chairs, with brackets, fountain cuspidors, and cases for instruments. Other rooms contain chairs and apparatus for the administration of anæsthetics, for the extraction of teeth, and for other purposes. Each student is required to supply himself with a dental engine and a full set of operating instruments; these must be purchased with the advice of the instructor, and will cost about one hundred dollars. Like the laboratory tools, they will be necessary to begin practice, and if carefully used will last many years; consequently care should be exercised in their purchase. They need not be purchased until the last half of the second year.

The dental course is now given in a new building erected especially for this work, which is probably the best planned and equipped building for the purpose in the world.

COURSES IN OTHER DEPARTMENTS

Those who can command the time may also avail themselves of numerous lectures, or pursue elective studies, in the Department of Literature, Science, and the Arts (page 93); or may attend special lectures in the Department of Medicine and Surgery (page 283), such as those on gynecology and the diseases of children, or on other subjects that are important to the practicing dentist.

TEXT-BOOKS

A list of the text-books used and recommended is given in the special Announcement of the college, copies of which will be sent on request.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance, and no seat will be assigned to a student until after such payment. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *forty-five dollars;* for all others, *fifty-five dollars.*

Graduation Fee.—For all alike, *ten dollars.*

Laboratory Expenses.—*Chemical Laboratory.*—Students are required to pay for the materials and apparatus consumed by them. The average expenses for the required course is about *ten dollars. Histological Laboratory.*—A charge of *seven dollars* is made for material used in this laboratory. *Bacteriological Laboratory.*—A charge of *fifteen dollars* is made for the expense of the course in this laboratory. *Anatomical Laboratory.*—A charge of *seven dollars* is made for material used in dissecting.

Incidental Expenses.—A charge of *ten dollars* a year is made against each student to cover the cost of supplies and equipment provided by the University. The expenses for incidentals, teeth, rubber, and other material needed in the technical courses, but not supplied by the University, are about *fifteen dollars.*

The average total expenses of a student of dentistry, including University fees, board, books, etc., for the college year of nine months, are three hundred dollars, and upwards, depending on individual habits and tastes. The cost of instruments and tools, amounting to about one hundred and fifty dollars for the entire course, is not included in the above estimate, for the reason that it is not properly a college expenditure, the tools being available and necessary in future practice.

To avoid embarrassment, new students should come prepared to spend during the first week about $125, if residents of Michigan, or $150, if not residents of Michigan, for University fees, books, and tools.

Additional information in regard to expenses may be found on pages 71 to 73.

Summer Session

A special Announcement of the Summer Session, containing further particulars than are here given in regard to the courses of instruction, etc., is published annually. Copies of this Announcement can be had by addressing Mr. Shirley W. Smith, Secretary of the University.

IN the Summer Session of the University, courses of instruction are offered in the Department of Literature, Science, and the Arts, the Department of Engineering, the Department of Medicine and Surgery, the Department of Law, the School of Pharmacy, and the Homœopathic Medical College. The University also maintains a Summer School of Library Methods, and a Summer Biological Camp located on Douglas Lake in Cheboygan County, Michigan.

While these courses are, for the most part, equivalent in every respect to the courses given during the Academic Session, special advantages are offered to advanced and graduate students.

The Administration of the Summer Session is in charge of JOHN R. EFFINGER, Dean, and the following Secretaries: EDWARD H. KRAUS, Department of Literature, Science, and the Arts; JAMES P. BIRD, Department of Engineering; G. CARL HUBER, Department of Medicine and Surgery; EDWIN C. GODDARD, Department of Law.

In the summer of 1910 the session will open on Tuesday, July 5, and continue for eight weeks, except in the Department of Medicine and Surgery, and in the Homœopathic Medical College, where it will continue for six weeks, and in the Department of Law, where it will continue for ten weeks.

REQUIREMENTS FOR ADMISSION

There are no formal requirements for admission to the Summer Session and its courses are open to all persons qualified to pursue them to advantage. Students who have been dismissed from the University will not be allowed to enter the Summer Session without the consent of the Dean of the Department of which they were members.

REGISTRATION

In order to facilitate arrangements for the accommodation of prospective students, it is urged that all persons contemplating work in the Summer Session should notify the Secretary on or before June 25. The offices of the University Treasurer and of the several Secretaries will be open for the registration of students on Friday and Saturday, July 1 and 2. So far as possible, it is expected that all students will arrange to reach Ann Arbor by July 2, in order to secure rooms and to register.

To register, the student must enroll with the secretary of the department in which he wishes to pursue studies, and pay his fees to the Treasurer. No student will be admitted to classes in any department except upon presentation of the Treasurer's receipt.

CREDIT FOR COURSES

Regular students of the University will receive credit toward graduation for work done in courses of University grade, upon passing satisfactory examinations at the close of the session. A record is kept of all University credits earned by students and these credits may be applied toward a degree in case the student becomes, subsequently, a candidate for a degree. The number of hours credit allowed for courses offered in the various departments is indicated in connection with the description of the courses, and where no such mention is made, no credit will be given. In the Departments of Literature, Science, and the Arts, and of

Engineering, the maximum amount of credit given for work done in any one Summer Session is eight hours.

Requests for further information concerning credits should be addressed to the secretary of the department in which credit is desired.

CREDIT CERTIFICATES

Students of the Summer Session who are not matriculated in the University will, upon request, receive certificates of attendance and of work satisfactorily performed. These certificates will bear the signature of the Secretary of the Department in which the work was done. Application for these certificates must be made at least two weeks before the close of the Session, and the applicant must leave at the office of the Secretary an envelope, stamped and directed to his home address. The certificate will then be forwarded by mail.

GRADUATE WORK

All graduate courses are open to students who are properly qualified to pursue them. Graduate students, who are regularly matriculated in the University and properly registered with the Secretary of the Graduate School, may carry on work during the Summer Session which will count toward an advanced degree (See matriculation, page 224). Such graduate work is under the direction of a committee of the Graduate School.

Candidates for the master's degree, if graduates of the University of Michigan, may present themselves for examination after attendance upon three Summer Sessions of the University, supplemented by satisfactory work done *in absentia* under the direction of the proper committee. Graduates of other institutions may present themselves for examination for such degree either after attendance upon four Summer Sessions or after two Summer Sessions and one semester's residence in the University.

Candidates for the doctor's degree will find that the

Summer Session offers unusual opportunities for research work. Detailed information concerning the requirements for the doctor's degree may be obtained from the Secretary of the Graduate School.

MATRICULATION

While no matriculation fee is required for the Summer Session, any person over sixteen years of age, desiring to enroll for a bachelor's degree in the Department of Literature, Science, and the Arts, may, upon presentation of a properly certified diploma from an accredited high school, or upon passing satisfactory entrance examinations, be permitted to matriculate in the University at the opening of the Summer Session and enter upon work for such degree.

Persons desiring to matriculate at this time should mail their credentials to Professor ARTHUR G. HALL, Registrar, at least one month before the opening of the Summer Session.

The matriculation fee, which is ten dollars for a citizen of Michigan, and twenty-five dollars for a person who comes from any other State or country, is paid but once, and entitles the student to the privileges of permanent membership in the University.

Graduates of any reputable college or university, who in the judgment of the Administrative Council of the Graduate School are competent to enroll for a higher degree, may, upon the payment of a fee of twenty-five dollars, matriculate in the University and enter upon graduate study during the Summer Session. This fee of twenty-five dollars includes the regular matriculation fee and the fee for the current Summer Session.

FEES

The fee for the Summer Session in the Departments of Literature, Science, and the Arts, and of Engineering, and in the School of Pharmacy, is $20.00 regardless of the number of courses taken. This fee will be required of those who wish to attend as visitors, as well as of those who wish to do regular work and attend the examinations.

In the Department of Medicine and Surgery, the fee is $15.00 for laboratory and demonstration courses, and $25.00 for the more strictly clinical courses, regardless of the number taken.

In the Department of Law the fee is $10.00 for a single subject, or $25.00 for full work.

In the Homœopathic Medical College the fee is $15.00.

Each student will be required to register in the department in which the major part of his work is done, and if he desires to elect work in another department in which the fee is higher, he will be required to pay an additional fee of $5.00 for each course so elected. The maximum fee for any student is $25.00. It is to be understood that in all cases where laboratory or demonstration fees are required, such fees are to be paid in addition to the regular Summer Session fee.

For additional information concerning fees and expenses, see pages 71 to 73.

COURSES OF INSTRUCTION

Summer Session of 1909

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS

GREEK

1. Homer's Iliad; rapid reading course. *Two hours.* Dr. WINTER.
2. Xenophon's Anabasis. *Two hours.* Dr. WINTER.
3. Greek Literature in English. *Two hours.* Dr. WINTER.
4. Greek Mythology and Religion. Lectures illustrated with the stereopticon, and assigned readings. *Two hours.* Professor BONNER.

FOR GRADUATES

5. The Greek Drama. *Two hours.* Professor BONNER.
6. The Bucolic Poets. *Two hours.* Professor BONNER.
7. Greek Palæography. *Two hours.* Professor BONNER.

LATIN

1. Beginning Latin. Double course. Assistant Professor MEADER.
2. Latin Writing. Translation of English into Latin. Dr. CRITTENDEN.

3. Caesar's Gallic War. Interpretation of selections, with a study of military antiquities. Dr. WINTER.

3*a*. Cicero. Dr. WINTER.

4. Virgil's Aeneid, Books VII to IX. Translation and interpretation. Study of the meter and style. *Two hours.* Dr. CRITTENDEN.

5. Roman Literature. Lectures and topical studies. *Two hours.* Dr. CRITTENDEN.

6. Rapid Reading of Easy Latin. *Two hours.* Dr. CRITTENDEN.

7. Lectures on Latin Grammar and Style, with exercises in Advanced Latin Writing. *Two hours.* Assistant Professor MEADER.

8. Monumental History of the City of Rome. *Two hours.* Professor KELSEY.

FOR GRADUATES

9. Latin Language. Phonology, morphology, semasiology, syntax, and style. Assistant Professor MEADER.

10. Catullus and Martial. Interpretation of selected poems, and lectures. Open to graduate students only. *Two hours.* Professor KELSEY.

FRENCH

1. Beginners' Course. See Department of Engineering.

2. Second Year French. *Six hours.* Professor EFFINGER and Assistant Professor THIEME.

3. Modern Prose. A course in rapid reading. *Two hours.* Professor EFFINGER.

4. Advanced Composition. *Two hours.* Assistant Professor THIEME.

5. The Drama of the Nineteenth Century. *Two hours.* Professor EFFINGER.

FOR GRADUATES AND UNDERGRADUATES

6. Modern French Fiction. *Two hours.* Professor EFFINGER.

7. The Novels of Hugo and Balzac. Lectures, reading, reports, and discussions. *Two hours.* Professor LEVI.

8. French Romanticism. *Two hours.* Professor LEVI.

FOR GRADUATES ONLY

9. Modern French Literature. Work is directed, according to the needs of students. Professor LEVI.

10. The History of French Fiction. A course in the history of the development of French fiction. Professor EFFINGER.

11. French Poetics. A study of the principles of French verse structure illustrated by readings from Old French, Classical French, and Modern French poetry. Assistant Professor THIEME.

ITALIAN

1. Beginners' Course. The aim of this course is to give the student a reading knowledge of Italian. *Two hours.* Professor LEVI.

SPANISH

1. Beginners' Course. The work will include a careful study of pronunciation, and the principles of Spanish grammar. *Four hours.* Assistant Professor WAGNER.
2. Modern Prose. Readings from nineteenth century authors for students who have had the equivalent of one year's work. *Two hours.* Assistant Professor WAGNER.

GERMAN

1. Beginners' Course. See Department of Engineering.

2. Modern Prose. *Two hours.* Assistant Professor FLORER.

2a. German Conversation. *Two hours.* Assistant Professor FLORER.

3. Lessing's *Nathan der Weise*. *Two hours.* Professor HILDNER.

4. Goethe's *Iphigenie* and *Tasso*, or Schiller's *Wallenstein*. *Two hours.* Assistant Professor EGGERT.

5. German Composition. *Two hours.* Professor HILDNER.

FOR GRADUATES

6. Advanced Course in German Composition, or German Essay-writing. *Two hours.* Assistant Professor BOUCKE.
7. Advanced German Grammar. *Two hours.* Professor DIEKHOFF.
8. Middle High German. *Two hours.* Professor DIEKHOFF.
9. Introductory Course in Old High German. *Two hours.* Professor DIEKHOFF.
10. Goethe's *Faust*. *Two hours.* Professor WINKLER.
11. German Romanticism. *Two hours.* Professor WINKLER.
12. Proseminary in Schiller. *Two hours.* Professor WINKLER.
13. The History of German Literature from 1848 to 1900. *Two hours.* Assistant Professor BOUCKE.
14. Proseminary in Heine. *Two hours.* Assistant Professor BOUCKE.

ENGLISH

1. Outline History of English Literature. *Two hours.* Mr. HUMPHREYS.
2. American Literature. *Two hours.* Professor STRAUSS.
3. Shakespeare. Selected plays. *Two hours.* Mr. HUMPHREYS.

FOR GRADUATES

4. Chaucer. *Canterbury Tales.* *Two hours.* Professor DEMMON.
5. Historical English Grammar. *Two hours.* Assistant Professor TILLEY.

6. Dramatic History and Technique. *Two hours.* Assistant Professor TILLEY.
9. Poetics. A study of poetic form (Epic, Lyric, and Drama), as illustrated in the works of Tennyson, Browning, Arnold, Morris, Rossetti, and Swinburne. *Two hours.* Professor DEMMON.
10. Introduction to the Poetry of Browning. *Two hours.* Professor STRAUSS.

RHETORIC

1*a*. Practical Composition. *Two hours.* Assistant Professor RANKIN.

2*a*. Practical Composition Continued. A course to follow 1*a*, and open to students who have had 1*a* or its equivalent. *Two hours.* Assistant Professor RANKIN.

3*a*. Prose Narration. *Two hours.* Assistant Professor RANKIN.

4*a*. Studies in Structure and Style. *Two hours.* Assistant Professor THOMAS.

FOR GRADUATES AND UNDERGRADUATES WHO RECEIVE PERMISSION

5*a*. The Theory and Practice of Argumentation. *Two hours.* Assistant Professor THOMAS.

FOR GRADUATES ONLY

6*a*. Advanced Studies in Rhetorical Theory. *Two hours.* Assistant Professor THOMAS.

GENERAL LINGUISTICS AND COMPARATIVE PHILOLOGY

1. Lectures on the Science of Language. *Two hours.* Assistant Professor MEADER.

ORATORY

1. Elocution. *Two hours.* Mr. HOLLISTER.
2. Shakespearean Reading. Critical study of two plays, a tragedy and a comedy. *Two hours.* Professor TRUEBLOOD.
3. Debating. Study and application of the principles of argumentation. *Two hours.* Professor TRUEBLOOD.
4. Interpretative Reading. *Two hours.* Mr. HOLLISTER.

LIBRARY METHODS

A course in library methods was inaugurated in June, 1909. The course was run throughout the eight weeks of the Summer Session and consisted of lectures and practice work five days a week, in accessions and shelf-listing, card alphabeting and filing, preparation of books for the shelves, cataloging and classification, Cutter author numbers, book selection and ordering, trade bibliography, reference and loan desk work, periodicals, charging systems, etc. There was special work in book binding every Saturday morning from 8 to 12.

A series of general lectures on books and bibliography, the general library movement in Europe and America, library buildings and fittings, the work of a public library, college and university libraries, and book selection was given throughout the eight weeks, and, by special permission, was allowed to count for two hours of University credit if satisfactorily completed. (Hours 10-11, Monday to Friday inclusive). This lecture course was conducted by Mr. Theodore W. Koch, Librarian of the University, who was also in charge of the general course.

The technical instruction was given by members of the University Library staff, while a number of special lectures were given by well known experts in this field of work.

HISTORY

1. General History of England. From the accession of Henry VII to the Puritan Revolution. *Two hours.* Professor CROSS.
2. The Later Middle Ages and the Reformation. *Two hours.* Professor DOW.
3. The History of American Colonies and the Origin of American Political Institutions (1608-1763). *Two hours.* Professor SIOUSSAT.
4. History of the Revolutionary Period and the Federalist Regime (1763-1800). *Two hours.* Professor SIOUSSAT.

FOR GRADUATES

5. Seminary in American History. *Two hours.* Professor VAN TYNE.
6. Introductory Historical Seminary. *Two hours.* Professor DOW.

POLITICAL ECONOMY

1. Elements of Political Economy. *Two hours.* Professor TAYLOR.
2. Money and Banking. *Two hours.* Professor TAYLOR.
3. Theory of Annuities and Insurance. *Two hours.* Professor GLOVER.
4. The Corporation Problem. *Two hours.* Assistant Professor SMALLEY.
5. Government Control of Industry. *Two hours.* Assistant Professor SMALLEY.

FOR GRADUATES

6. Economic Studies. This course is designed for graduates and advanced students. *Two hours.* Assistant Professor SMALLEY.

SOCIOLOGY

1. Principles of Sociology. Social Organization. *Two hours.* Professor COOLEY.

FOR GRADUATES

2. Graduate Seminary. *Two hours.* Professor COOLEY.

PHILOSOPHY AND PSYCHOLOGY

I. INTRODUCTORY COURSES.

1. Introduction to General Philosophy. *Two hours.* Professor LLOYD.
2. Elementary Psychology. *Two hours.* Professor PILLSBURY and Mr. DOCKERAY.

3*b*. Teachers' Course in Practical Ethics; Religion as a Factor in Ethical Life. *Two hours.* Professor WENLEY.

II. COURSE IN ETHICS.

4. Ethics. *Two hours.* Dr. EMERSON.

III. FOR GRADUATES AND UNDERGRADUATES.

5. Æsthetics. *Two hours.* Professor WENLEY.
6. Experimental Psychology. *Two hours.* Professor PILLSBURY and Mr. DOCKERAY.

IV. FOR GRADUATES.

7. Seminary in History of Philosophy and Ethics. Professor LLOYD.
8. Seminary in Contemporary Philosophy. Dr. EMERSON.

EDUCATION

I. HISTORICAL COURSES.

1. History of Ancient and Mediæval Education. *Two hours.* Assistant Professor BERRY.
2. History of Modern Education. *Two hours.* Assistant Professor BERRY.
3. Educational Reformers. *Two hours.* Assistant Professor JOHNSTON.

II. THEORETICAL COURSES.

4. Psychology of Education. *Two hours.* Assistant Professor JOHNSTON.
5. Philosophy of Education. *Two hours.* Assistant Professor JOHNSTON.

III. ADMINISTRATIVE COURSES.

6. School Hygiene. *Two hours.* Assistant Professor BERRY.
7. School Administration. *Two hours.* Professor WHITNEY.
8. Comparative School Systems, *Two hours.* Professor WHITNEY,

MATHEMATICS

1. Plane Geometry. A review of plane geometry, preparatory to the University. Mr. Poor.

1a. Solid Geometry. A review of solid geometry, preparatory to the University. Mr. Poor.

2. Elementary Algebra. A review of Elementary Algebra through quadratics, preparatory to the University. Dr. Bradshaw.

3. Trigonometry. An elementary course in plane trigonometry. *Two hours.* Mr. Love.

4. Algebra. *Two hours.* Dr. Bradshaw.

5. Analytic Geometry. An elementary course in analytic geometry. *Four hours.* Dr. Karpinski.

6. Geometry and Algebra. This course is intended for teachers. *Two hours.* Professor Markley.

7. Calculus. *Four* or *five hours.* Assistant Professor Ford.

7a. Calculus. Integral Calculus. *Two hours.* Assistant Professor Running.

9. Mechanics. *Two* or *three hours* credit. Assistant Professor Running.

8. Theory of Annuities and Insurance. *Two hours.* Professor Glover.

FOR GRADUATES

10. Differential Equations. *Two hours.* Professor Glover.

11. Projective Geometry. *Two hours.* Professor Markley and Assistant Professor Bradshaw.

12. Theory of Functions. *Two hours.* Professor Markley.

ASTRONOMY

2s. Modern Astronomy. *Two hours.* Professor Hussey.

3s. Practical Astronomy. *Two hours.* Assistant Professor Curtiss.

5s. Theoretical Astronomy. *Two hours.* Professor Hussey.

9s. Astrophysics. This course will probably be given in the Summer Session of 1910, but it was not offered in 1909.

PHYSICS

1s. Physics for Admission. Assistant Professor Henderson and Dr. Colby.

2s. Teachers' Course. Assistant Professor Henderson.

2. General Physics. *Four hours.* Assistant Professor Henderson.

3. Laboratory Work. This course may be elected as 3a, *three hours,* or 3b, *two hours.* Mr. Williams.

3s. Elementary Lessons in Glass Blowing. Assistant Professor Randall.

4. Primary and Secondary Batteries. *Two hours.* Assistant Professor Smith.

FOR GRADUATES AND UNDERGRADUATES

5. Electrical Measurements. *Four hours.* Assistant Professor SMITH.
6. Sound and Other Oscillatory Phenomena. *Four hours.* Professor REED.
8. Theory of heat. *Two hours.* Assistant Professor RANDALL.
9. Laboratory Work in Heat. *Two hours.* Assistant Professor RANDALL.
11. Theory of Light. *Four hours.* Professor REED.
12. Advanced Electrical Measurements. *Three hours.* Assistant Professor SMITH.
14. Advanced Work in Sound. *Two hours.* Professor REED.
15. Advanced Work in Light. *Two hours.* Professor REED.
17. Measurements of High Temperatures. *One hour.* Assistant Professor RANDALL.

CHEMISTRY

1. Elementary Inorganic Chemistry. *Four hours.* Assistant Professor HALE and an assistant.

1*a*. Elementary Laboratory Work in Inorganic Chemistry. *Two hours.* Assistant Professor HALE.

2. Advanced Inorganic Chemistry. *Two hours.* Assistant Professor LICHTY.

2*a*. Laboratory Work in Inorganic Chemistry. *Four hours.* Assistant Professor LICHTY.

3*a*. Qualitative Analysis. *Four hours.* Mr. SMEATON, Mr. CARNEY, and Mr. WALKER.

3*b*. Qualitative Analysis. *Four hours.* Mr. CARNEY.

4. Inorganic Preparations. *Two to four hours.* Assistant Professor LICHTY.
5. Beginning Quantitative Analysis. *Five* or *six hours.* Mr. ZIMMERSCHIED.
6. Organic Chemistry. *Two hours.* Professor GOMBERG.
7. Organic Preparations. *Two to five hours.* Dr. CONE.
9. The Theoretical Foundations of Analytical Chemistry. *Two hours.* Dr. LIND.
10. Elementary Theoretical and Physical Chemistry. *Two hours.* Professor BIGELOW.
11. Physical-chemical Measurements (Laboratory). *Two, four* or *six hours.* Dr. LIND and assistant.

PHARMACY

1. Theory of Pharmacy. *Three hours.* Professor SCHLOTTERBECK and Mr. LINTON.
2. Manufacturing Pharmacy. *Three hours.* Professor SCHLOTTERBECK and Mr. LINTON.

3. Pharmacognosy, Materia Medica, and Therapeutics. *Four hours.* Professor SCHLOTTERBECK.
4. Prescription Practice. Professor SCHLOTTERBECK and Mr. LINTON.

MINERALOGY

1. Elements of Mineralogy. *Two hours.* Professor KRAUS and Mr. COOK.
4. Determinative Mineralogy. *Two hours.* Mr. COOK.
5. Qualitative Blowpipe Methods. *Two hours.* Mr. HUNT.
9. Lithology. *Two hours.* Mr. COOK.

FOR GRADUATES

3. Crystal Measurements. *Two, four* or *six hours.* Professo KRAUS and Mr. COOK.
8. Research Work. Professor KRAUS.

GEOLOGY

1. Teachers' Course in Physiography. *Two hours.* Mr. SCOTT.
2. Elements of Geology. *Two hours.* Mr. SCOTT.
3. Field Geology. *Two hours.* Mr. SCOTT.

BOTANY

1. General Biology. *Two hours.* Dr. KAUFFMAN.
2. General Biology. This is a continuation of Course I, and carries the study of plants through Liverworts, Mosses, Ferns, and Gymnosperms into Flowering Plants. *Two hours.* Dr. KAUFFMAN.
3. Mycology. Fleshy Fungi. *Two hours.* Dr. KAUFFMAN.
4. Teachers' Course in Field Ecology. *Two* or *four hours.* Dr. HUS.
5. Teachers' Course in Methods and Technique. *Two hours.* Assistant Professor POLLOCK.

FOR GRADUATES AND UNDERGRADUATES

6. Plant Disease. *Two* or *four hours.* Dr. POLLOCK.
11. Plant Culture and Breeding. *Two* or *four hours.* Dr. HUS.

ZOOLOGY

1. Elements of Animal Biology. *Two hours.* Dr. HEGNER.
2. The Birds and Mammals of Michigan. *Two hours.* Dr. HEGNER.
3. Evolution and Heredity. *Two hours.* Dr. CASTEEL.

ADVANCED COURSES.

4. Invertebrate Zoology. *Four hours.* Dr. CASTEEL and Dr. HEGNER.
5. Embryology of Vertebrates. *Four hours.* Assistant Professor GLASER,

6. Physiological Zoology. *Four hours.* Assistant Professor GLASER.

FOR GRADUATES

7. Zoological Investigation. *Three* or *five hours.* Assistant Professor GLASER and Dr. HEGNER.
8. Zoological Seminary. *Two hours.* Assistant Professor GLASER.

BIOLOGICAL STATION

A station for instruction and research in Biology was maintained by the University of Michigan as a part of its regular Summer Session during 1909.

The station was located near the Bogardus Engineering Camp of the University on a tract of about 1,700 acres of land owned by the University and stretching from Douglas Lake to Burt Lake in Cheboygan County, Michigan, 17 miles south of the Straits of Mackinac.

It was not the purpose of the station to duplicate the work offered at the University, but rather to provide facilities for field work of a sort that cannot be so well carried on at the University or under the limitations imposed by a University schedule.

Students, except as below, paid the regular Summer Session fee of $20.00 for the eight weeks and were then entitled to take courses aggregating eight hours University credit, and to use the scientific equipment. A charge of six dollars per week for board and lodging was made to those students who lodged in the tents provided by the station. Students could, however, provide their own camp equipment, and obtain meals at the Bogardus Camp Dining Hall at $4.00 per week.

Students not graduates of the University of Michigan who enrolled in the Graduate School were required to pay in place of the above fee of $20.00, a fee of $25.00. This fee of $25.00 included the regular matriculation fee of the University and the fee for the current summer.

THE FINE ARTS

1. The History of the Fine Arts. *Two hours.* Assistant Professor WASHBURN.
2. Teachers' Course in Drawing. *Two hours.* Assistant Professor WASHBURN.

PHYSICAL TRAINING

1. General Gymnastics and Physical Training. Dr. MAY.
2. Corrective Gymnastics. Dr. MAY.
3. Treatment of Emergencies. Dr. MAY.
4. Anthropometry. Dr. MAY.
5. Special Contest Exercises. Dr. MAY.

DEPARTMENT OF ENGINEERING

ENGLISH

1*s*. Paragraph and Theme Writing. *Four hours.* Dr. BREITENBACH.
2*s*. Expository Writing. *Two hours.* Dr. BREITENBACH.
3*s*. Scientific Literature. *Two hours.* Dr. BREITENBACH.
4*s*. Specifications and Contracts. *Two hours.* Dr. BREITENBACH.

GERMAN

1*s*. Beginners' Course. *Six hours.* Professor WAIT and Dr. HAUHART.
1*a-s*. Beginners' Course. *Four hours.* Professor WAIT and Dr. HAUHART.

FRENCH

1*s*. Beginners' Course. *Six hours.* Mr. BIRD.
1*a-s*. Beginners' Course. *Four hours.* Mr. KENYON.

METALLURGY

1. Fuel and Refractory Material, Iron and Steel. *Two hours.* Mr. ZIMMERSCHIED.

DRAWING

1*s*. Geometrical Drawing. *Two hours.* Mr. MILLER.
4*s*. Descriptive Geometry. *Four hours.* Mr. MILLER.
5*s*. Advanced Projections and Stereotomy. *Four hours.* Mr. BARTLETT and Mr. FINCH.
10*s*. Free-Hand Lettering. *Two hours.* Mr. FISHLEIGH.
21*s*. Architectural Drawing. *Two hours.* Assistant Professor WASHBURN.

SHOP PRACTICE

1*s*. Wood Shop and Forge Shop. *Four hours.* Mr. YEATMAN and Mr. McDONALD.
2*s*. Pattern-making and Foundry. *Four hours.* Mr. YEATMAN and Mr. BULL.
3*s*. Machine Shop. *Four hours.* Mr. COBB.
5*s*. Instrument-making. *Two hours.* Mr. STEVENSON.

SURVEYING

3*s*. Field Work in Camp. *Eight hours.* Assistant Professors MERRICK and RICH, Mr. ATWELL, Mr. SCHMUTZ, Mr. BRODIE, Mr. CAREY and assistants

CIVIL ENGINEERING

1*a*. Structural Mechanics. *Four hours.* Assistant Professor ELLIS.
1*b*. Strength and Resistance of Materials. *Four hours.* Professor TILDEN.

MECHANICAL ENGINEERING

1*s*. Mechanism and Graphical Statics of Machines. *Four hours.* Mr. Bartlett, Mr. Fishleigh, and Mr. Finch.

2*s*. Machine Drawing. *Two hours.* Mr. Mudge.

3*s*. Steam Engines and Other Heat Engines. *Four hours.* Assistant Professor Bursley.

5*s*. Thermodynamics. *Two hours.* Professor Allen.

7*s*. Steam Laboratory. *Two hours.* Mr. Bursley.

9*s*. Steam Laboratory. *Three hours.* Mr. Mudge.

10*s*. Machine Design. Boilers and Engines. *Three hours.* Mr. Mudge.

ELECTRICAL ENGINEERING

1*s*. Dynamo-Electric Machinery. *Two hours.* Mr. Allen.

2*s*. Dynamo-Electric Machinery. Laboratory work. *Two hours.* Mr. Higbie and Mr. DeLay.

3*s*. Alternating-Current Generators, Motors, and Transformers. *Four hours.* Assistant Professor Higbie and Mr. Parker.

7*s*. Photometry and Illumination. *Two hours.* Mr. Higbie.

13*s*. Telephone Engineering. *Two hours.* Mr. Parker.

14*s*. Telephone Engineering. Laboratory work. *Two hours.* Mr. Parker.

MARINE ENGINEERING

6. Naval Architecture. *Three hours.* Assistant Professor Bragg.
7. Naval Architecture. Ship Drawing and Design. *Three hours.* Assistant Professor Bragg.
9. Marine Engines. *Two hours.* Assistant Professor Bragg.

DEPARTMENT OF MEDICINE AND SURGERY

MEDICINE

1. Clinical Medicine. Dr. Cowie.
2. Clinical Microscopy. Dr. Cowie and Dr. Van Zwaluwenberg.
3. Physical Diagnosis. Dr. Van Zwaluwenberg.

SURGERY

1. Clinical Surgery. Professor Darling.
2. Operative Course in Surgical Technique and Operative Surgery. Professor Darling.
3. Genito-Urinary Surgery. Dr. Loree.

GYNECOLOGY

1. Clinical Gynecological Diagnosis. Dr. Witter.
2. Diagnostic and Operative Gynecology. Dr. Witter.

PATHOLOGY

1. Laboratory Course in Pathology. Professor Warthin.

CLINICAL OTOLARYNGOLOGY

1. Diseases of the Ear, Nose and Throat. Professor CANFIELD.

PHYSIOLOGICAL CHEMISTRY

1. Laboratory Work in Physiological Chemistry. Mr. FORSYTHE.

BACTERIOLOGY

1. Laboratory Work in Bacteriology. Dr. McJUNKIN.

ANATOMY

1. Laboratory Work in Human Anatomy. Dr. STILES.

HISTOLOGY

1. Laboratory Work in Vertebrate Histology. Professor HUBER and assistant.

DEPARTMENT OF LAW

The brief courses given in the Summer Session are offered, not as, in any sense, the equivalent of the corresponding courses of the regular session, but as affording to persons who have previously studied the subjects a fitting review to prepare them to ask for advanced standing in the department; and as furnishing to persons who are preparing to take examinations for admission to the bar a valuable drill on the fundamental principles of the subjects offered.

The schedule of work is so arranged that no two exercises are held at the same hour. Each student is expected to take three hours a day of class work; and no student who has not previously studied law for at least ten months is allowed to take more than twenty hours of instruction a week. But persons who present proper certificates of having spent at least ten months in the reading of law, may, upon application, receive special permission to take such work as they appear able to carry to advantage.

An examination is held in each subject at the close of the course.

The courses of study given in the summer of 1909 were as follows:

Agency.—Mechem's *Outlines and Cases.* Assistant Professor HOLBROOK.

Contracts.—Anson on *Contracts.* Professor KNOWLTON.

Criminal Law.—Rood's *Digest of Criminal Law Cases.* Professor ROOD.

Criminal Procedure.—Clark's *Criminal Procedure.* Professor BUNKER.

Domestic Relations.—Tiffany on *Domestic Relations.* Assistant Professor HOLBROOK.

Elementary Law.—Blackstone's *Commentaries,* Books I, II. Professor DRAKE.

Real Property (Elementary).—Blackstone's *Commentaries,* Book II. Professor Rood.

Sales.—Tiffany on *Sales.* Professor Lane.

Torts.—Hale on *Torts.* Professor Bunker.

Bailments and Carriers.—Goddard's *Outlines and Cases.* Professor Drake.

Bills and Notes.—Bunker's *Cases on Bills and Notes.* Professor Bunker.

Common Law Pleading.—Martin's *Civil Procedure.* Professor Bogle.

Corporations (Private).—Clark on *Corporations and Cases.* Professor Lane.

Damages.—Mechem's *Cases on Damages.* Professor Drake.

Equity Jurisprudence.—Pomeroy's *Equity Jurisprudence.* Professor Rood.

Equity Pleading.—Thompson's *Equity Pleading.* Professor Thompson.

Evidence.—Reynolds on *Evidence.* Professor Lane.

Partnership.—Mechem's *Elements and Cases.* Professor Drake.

Quasi-Contracts.—Woodruff's *Cases.* Professor Knowlton.

Real Property (Advanced).—Finck's *Cases on Real Property.* Professor Thompson.

HOMŒOPATHIC MEDICAL COLLEGE

1. Clinical Laboratory. Dr. Burrett.

List of Graduates of 1909*

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS

BACHELOR OF SCIENCE

Harold Alexander Baxter
Joseph Nicholas Bourg
Royal Sumner Buzzell
Arthur Sherwood Hopkins
Horace Harmon Lamberton
Byron Eldred Mills
†Harry C. Schlatter
Zera Simon
Ralph Byron Textor
Crystal Thompson
Clyde Emerson Vreeland
Joseph Amasa Welton
†Clarence J. West
Edward Zuckermandel 14

BACHELOR OF ARTS

Arthur James Abbott
Clarence James Agnew
Alfred John Anderson
Crawford Anderson
Belle Arbour
Henry Irwin Armstrong, Jr.
Harry Loren Arnold
Edwin Burdette Backus
Leon Milburn Bailey
Edwin Laurence Baker, Jr.
Florence Elizabeth Baker
Grace Amanda Baker
Florence Catherine Ball
Florence Alice Bannister
Howard L. Barkdull
Ruth Helen Bartlett
Coralyn Eleanor Bass
Leora Raye Baum
Ross Herbert Baumunk
Henricka Bryant Beach
Una Rachel Beaghler
Charles C. Becher
†John Montgomery Bedford
Mabel Elizabeth Bell
J. Louise Bennett
Eva Ella Beurmann
Bessie Iolanthe Bigelow
John David Biggers
Marion LeRoy Billings
Katherine Birney
Dorothea Bishop
Nancy Gertrude Blake
Kittie Lynn Blakeney
Bertha Augusta Blanchard
Lois Bogle
Chauncey Samuel Boucher
Helen Carolyn Bradley
†Lena Brady
†William Nathaniel Braley
John Kennicott Brenton
Georgiana Laurine Broadwell
Bruce John Broady
†Dorothea Josephine Brotherton
Hearty Earl Brown
†Lillian May Brown
Henry Alphonse Bundschu
†Minnie Antoinette Burgoyne
Frederick Harrison Busby
Leslie Ernest Butterfield
Florence Margaret Campbell

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*The list of Graduates contains the names of all persons on whom degrees were conferred during the year 1909. A dagger (†) indicates that the degree was conferred at some other time than Commencement.

Howard Hugh Campbell
Eleanor Jerome Carey
Agnes Georgia Carpenter
Henrietta Carr
Henry Rohnert Carstens
†Bertha Esther Cassidy
†Veva Beatrice Castell
Edmund Bigelow Chaffee
Neil Thompson Chamberlin, Ph.C., B.S. (Phar.)
Henry Francis Chaney
†Hiram Hobert Chapman
†Alta Blanche Chase
Edna Abigail Clawson
Alice Marie Coats
Carl Jenness Coe
Nina Coghlan
William Joseph Colgan
†Lila Mae Colwell
Ida Grace Comstock
Mabel Louise Conat
Helen Fulton Corley
Elizabeth Jeannette Cornell
George Henry Coverdale
Jessie Scott Cowing
John Alexander Craig
Harry Wolven Crane
Blanche Veness Crosby
Maurice Edgar Crumpacker
Wirt Edward Darrow
Clinton Hughes Davis
John R. Davis
As of the Class of 1906
Winifred Ellen Davis
Carl Moser Deakin
Malcom Francis Denise
Ludwig Frank Derfus
Senekerim Manook Der Hagopian (Bishop), A.B., *Anatolia College*, Ph.C.
Alfred Liebert Devos
Benjamin Harrison Dewey
Andrew Jackson Dighton
Edmund Arthur Dittman
Arthur Emerson Dixon
Ida Joanna D'Ooge
†Stephen Maynard Dudley
William Jacob Duppert
Elsa Amanda Eberbach
†Benjamin Rudolph Eggeman
Harley Blaine Eikenberry
Clarence Ernest Eldridge
Harry Delmar Ellis
†Fred Chester Elmer
Laura Emery
†John Emil Erickson
†Luther Paul Ettinger
Mary Runnels Fayram
Dora Christian Fearon
Mary Blake Fiddick
Solomon Fishbaine
Raymond Lawton FitzGerald
Harvey Milton Fogelsonger
Joseph Samuel Folz
Margaret Foster
Harry Clayton Fraser
Arthur Joseph Freese
Marcus Leopold Freud
Helen C. Gable
Nina May Gage
†George Wilfred Gannon
Lillian Gatlin
Grace Gibson
†Myra Genevieve Gibson
Allan Mowry Giddings
†Quinter Olen Gilbert
†Archie Richard Gilpin
Joseph Fletcher Goldsberry
Blanche Alice Goodnow
Elsie Maud Jilbert Goodsole
Jean Hunter Goudie
Frances Speed Graham
†Raymond Granger
Carl Blackwood Grawn
Ruth Curtis Greathouse
†Isidor Greenwald
Lucile Force Gregory
Harlow Diodat Grose
†Philip Sheridan Gutches
Adelaide Gutchess
William Frederick Haas
George Lydia Hager
Donal Hamilton Haines
Helena Louise Hall
Ruth Louise Haller
Stuart McCune Hamilton
Don Vilrette Hargrave
Jesse Ernest Harkness

Theron Alvin Harmon
Gordon Leslie Harrison
Lucia Caroline Harrison
Howard Charles Hawkins
Alberta Waldo Hawley
Ira Myron Hawley
†Ralph Ernest Hawley
Cordelia May Hayes
Alta Wilson Hayward
Ransom Hazelton
Roscoe Larcom Heaton
Grace Heitsch
Nina Alice Henderson
†Edward Liveus Hendrick
Frank Hendry
Paula Henze
Lotta Bernice Hobart
†Lillian May Hodge
†John Thomson Hodges
Hattie Hoffman
Edith May Holbrook
Lillian May Holbrook
Bertha Jane Hough
Guy Watson House
Donald Chester Hoyt
Nettie Elizabeth Hughes
Max Hulett
Leroy Wetmore Hull
Hazel Loretta Hunter
Chester Frederick Idema
Otto Reinhold Ihling
Muriel Vida HasBrouck James
Frances Alexis Jarvis
Grace Irene Jeffries
German Levant Jenner
Jay Howard Johnson
Robert Gray Johnston
Dorothea Jones
†Floyd Harding Jones
Harry Morton Keal
Amy Elizabeth Keene
Roberta Jane Kehoe
Spencer Dix Kelley
John Titus Kenny
Kate Lillian Kern
Clara Alma Kief
Katharine Philcetta King
†Rexford King
Melinda Kinyon
Frieda Kleinstück
Dorothea Kneeland
Jean Bowden Knight
†William Frederick Koch
Jeanette Elizabeth Kotvis
Louis Clement Kraft
†Charles Brooks Kress
Margaret Rose Kress
Albert George Kyselka
Ralph Burdette Lacey
James Graham Lake
James William Lampman
†Louis Theodore Larsen
Gertrude Eliot Law
Anna Bell Lee
George Hammond Lee
Paul Allen Leidy
Edith Blanch Leonard
Perry Albert Lint
Elsie Sarah Linton
Chester Miller Loomis
Frederic Morris Loomis
Albert Joseph Lubbe
Louise Carey McConnel
Edward Blake MacDonald
†Michael Brennan McHugh
Anna Elizabeth MacKay
Frederick Bardwell McKay
Margaret Nielson McLauchlan
Lyle Dee McMillan
John Arthur McNeil
Harry Hrand Migerdich Malejan
Raymond Earl Manchester
Hermine Mann
Harvey McKnight Manss
Carl Eugene Marquardt
Viola Marie Marshall
Wilma Marx
Leah Scott Mason
Mabel Willcox Mason
†Hope Mersereau
Samuel Elgin Mifflin, Jr.
Donald Crandon Miller
Harry Clendennon Miller
Leon William Miller
Leon Floyd Miner
Louise Emma Miske
Frances Thornton Mitchell
Vernor Milo Moore

†Stoddard Stevens More
Eva Fatima Morris
Augustine Robert Mountsier
Harriet Mary Mudge
Clinton Jones Nelson
Wencel Alexander Neumann
Lydia Belle Norris
†John Olthouse
Harry Evans Patrick
Harold Azro Patterson
Herbert Eugene Paulson
Edna Pauline Peet
Ellen Bertha Person
May Madden Person
James Webber Peter
Sara Jane Phelps
†Leslie Arlington Phillips
Sarah Jane Pledger
Hugh Robert Porter
Katherine Cecilia Post
Charlotte Ione Poynor
David Wight Prall
†Walter Mitchell Pratt
Edward Peter Pree
John Hosie Price
†Daniel Edgar Pugh, Jr.
†Augustus Glover Purvis
Adele Rabinovitz
Rebecca Browning Rankin
Webster Hamilton Ransom
Conrad Raps
†Ethel Susan Rawson
Albert Hargrave Reynolds
Frances May Richards
Armin Rickel
Katharine May Rider
Stella Marie Rinsey
Alice Chase Robinson
McKee Robison
Elizabeth Rogers
†Charles Chamberlain Root
Mary Evelyn Root
†May Davis Root
Florence Ruby
Ruth Rush
Walter White Russell
†Agnes Elizabeth Ryan
Nellie Myrtle Santee
†James Blaine Saxton
Gertrude Flora Schweinfurth
Margaret Elizabeth Scott
Amy Gwendolen Scutt
Ward F. Seeley
†Roy Lyman Sessions
Rudolph Vogel Shakes
Mabel Florence Sheplar
Delos Abiram Shiner
Olive Vida Sinclair
Rachel Euphemia Sinclair
Maurice Singer
John Meyer Slagh
William Warner Sleator
Jean Paul Slusser
Helen Marion Smart
Clyde Marsh Smith
Dennis Vincent Smith
†Florence Edith Smith
Harry Buchanan Smith
Hiram Richard Smith
†Irving Joseph Smith
As of the Class of 1908
†Lillian Blanche Smith
Richard A. Smith
Edith Margaret Snell
Grace Sorenson
Clarence Bedell Staley
†Caroline Matilda Stanchfield
Rhoda Marian Starr
Anna Breese Steele
Marjorie Preston Steele
Madge Annie Stewart
†Albert Clyde Stitt
Vera Fox Stitzel
Florence Lucile Stockly
Julia Lorretta Stott
Heber Gillespie Stout
Genevieve Stowe
Sylvester William Strothman
Eva Gwendolen Stumpf
Gail Hamilton Swift
Reuel James Tanquary
Orrett Tatlock
Helen Beulah Thompson
Paul Harold Todd
Wilmer Everett Toney
†Martin B. Travis
Arthur Frank Trever
Clara Louise Trueblood

Charles Earl Turner
Frank Dickinson Urie
Maud Inez VanArsdale
John Van Haitsma
Louise Van Voorhis
Beverly Blair Vedder
Martha Lucia Wagner
Henrietta Evans Walker
Clarence Ernest Wampler
James Keir Watkins
Mary Amalia Weber
Emma Rose Weitz
Roy Dickinson Welch
Gordon Fay Willey
Orrin Bowman Winter
Wilmer Harvey Wood
Levina S. Woodworth
Paul Bartholomew Work
Winthrop Robins Wright
William Frederick Wunsch, LL.B.
John Francis Wurz
Leigh Jarvis Young

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MASTER OF SCIENCE

(IN FORESTRY)

John Lewis Cobbs, Jr., A.B., *University of the South*
George Argo Duthie, A.B.
George Andrew Gutches, B.S., *Hobart College*
Edward William Headsten, A.B.
Ernst Victor Jotter, A.B.
Donald Maxwell Matthews, A.B.
William West Morris, A.B.
Chester Birney Morse, A.B., *Ripon College*
Thomas Claude Spaulding, B.S., *University of Montana*
John Wallace Stephen, A.B.
Sidney Smith Stewart, A.B., *Wabash College*

11

MASTER OF SCIENCE

†James Irven Bricker, A.B., *Hillsdale College*
Ralph Devries, B.S. (E.E.)
Charles Edward Griffin, A.B., *University of Denver*
James Elmer Harris, A.B.
Jay Theodore Reed, A.B.
Charles Summers Robinson, A.B.
†Otto Hugo Adolph Schenk, A.B.
†Elizabeth Dorothy Wuist, A.B.

8

MASTER OF ARTS

Elizabeth Melvine Andrews. A.B., *Leland Stanford, Jr., University*
Bessie Annis, A.B., *University of Washington*
Cornelius K. Baarman, A.B., *Hope College,* A.B.
Grace Mabel Bacon, A.B., *Mount Holyoke College*
Webster Edwin Bliss, A.B.
Loretta Agatha Brown, A.B.
Minnie Antoinette Burgoyne,A.B.
Philip Everette Bursley, A.B.
†William Dean Chadwick, A.B., *Marietta College*
Clara Abigail Chase, A.B.
Henry Ward Church, A.B.
Guy Conrey, A.B.
John William DeBruyn, A.B.
†George Bion Denton, A.B.
Harriette May Dilla, A.B.
†Floyd Carlton Dockeray, A.B.
Lucius Walter Elder, A.B.
†Alfred Lynn Ferguson, A.B.
Charles Ney Filson, A.B., *Bethany College*
Earl Garfield Fuller, A.B.
Wilmer Carlyle Harris, Ph.B., *University of Chicago*
†Ada May Herr, A.B., *Southwestern College, Kansas*

Mary Taylor Hill, A.B., *Western College for Women*
Harry Garfield Houghton, A.B.
†Harry Hale Howett, Ph.B., *Antioch College*
Gertrude Marie Johnston, Ph.B., *University of Vermont*
Ella Louise King, A.B., *Olivet College*
Jessie Cogswell Laird, A.B., *Mount Holyoke College*
Elmer S. Lake, A.B., *University of Illinois*
Edward Henry Lauer, A.B.
Sterling Andrus Leonard, A.B.
Mary Delia Lewis, A.B., *Smith College*
Donald P. McAlpine, AB., *Lombard College*
Carroll Brown Malone, A.B., *Western Reserve Universtiy*
Pauline Martin, A.B., *Olivet College*
Herma Louise Meyer, A.B.
Hattie Lindsay Middaugh, A.B.
Nellie Amanda Montgomery, A.B., *Hillsdale College*
†Margaret Parthenia Murrell, A.B.
John Nelson Norwood, Ph.B., *Alfred University*
Waldo Disraeli Parker, A.B., *Clark University*
Mable Edith Holmes Parsons, A.B.
Daniel Leslie Rich A.B., *Waynesburg College*
Annie L. Richardson, B.L., *Mount Holyoke College*, A.B., *ibid.*
Henrietta Elizabeth Rosenthal, A.B.
Bessie Sexton, A.B.
Edythe Viola Smeeth, A.B.
Alida Smith, A.B., *Simpson College*
†Benjamin Franklin Smith, A.B.
Lisle D. Smith, A.B., *Albion College*
†Gertrude E. Spencer, A.B.
Adaline Eugenia Stanley, B.S., *Lebanon University*, A.B., *ibid.*
Juliet Williston Stockbridge, A.B.
Arthur Floyd Strome, A.B.
Olive May Sutherland, A.B.
William Everett Trebilcock, A.B.
†Oscar Stuart Trumble, A.B.
Julius F. Vornholt, A.B., *Ohio State University*
†James Ervin Weyant, A.B., *Albion College*
†Charles Henry Woolbert, A.B., *Northwestern University*
Gertrude Worden, A.B., *Hillsdale College* 61

DOCTOR OF SCIENCE

Lucas Petrou Kyriakides, A.B. 1

DOCTOR OF PHILOSOPHY

Herbert Francis Allen, A.B., *University of South Dakota*, A.M., *ibid.*
Harold Prell Breitenbach, A.B., A.M.
Walter Francis Colby, A.B.
Richard de Zeeuw, A.B., *Hope College*, A.B.
Solomon Francis Gingerich, A.B., *Indiana University*, A.M., *ibid.*
Wilbur Olin Hedrick, B.S., *Michigan Agricultural College*, M.S.
Frank John Mellencamp, A.B., A.M.

William Daniel Moriarty, A.B., A.M.
Mahlon Ellsworth Olsen, A.B., A.M.
Carl Eugene Parry, A.B., A.M.
Leigh H. Pennington, A.B.
Roy Wood Sellers, A.B.
†Harry Conrad Thurnau, A.B., A.M. 13—470

DEPARTMENT OF ENGINEERING

BACHELOR OF SCIENCE

(IN PREPARATION FOR ENGINEERING)

George Stevenson Callahan
†Albert Robinson Ford
Walter Randolph Hans
Frank Arnold Horner
Reuben McArthur
Harry England McCool
†William Howard Norrington
Benjamin Simpson Philbrick
†Arthur Emerson Sortore
James Clements Wheat
James Gayford Witton, A.B., *University of Toronto*
11

BACHELOR OF SCIENCE

(IN ARCHITECTURE)

Erna Cary Stiles
Harry Thomas Wessinger 2

BACHELOR OF SCIENCE

(IN ARCHITECTURAL ENGINEERING)

Ernst Frederick Lang
Walter Mitchell Pratt
†Thomas Maybury Weber
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STUDENTS

GRADUATES[1]

*John Quincy Adams, B.L., 1894, LL.B., 1898 English Oratory, English Drama, English History.	*Alma*
*Wilford Merton Aikin, B.S., *Muskingum College,* 1907 English, Oratory, Education.	*Jackson*
*Eveline Louise Anderson, A.B., 1906 Mathematics, History of Education, Psychology.	*Houston, Minn.*
†William Benton Arbaugh, A.B., 1898 Education, Ethics, Sociology.	*Ypsilanti*
Edith Emma Atkins, A.B., 1890, A.M., 1908 Latin, Greek, English.	*Ann Arbor*
Mary Charlotte Axt, A.B., *Columbia University,* 1908 Vertebrate Zoology, Physiological Zoology, Education.	*Port Richmond, N. Y.*
*George Preston Bacon, A.B., *Dartmouth College,* 1887 Physics, Mathematics, Astronomy.	*Wakefield, R. I.*
†Grace Mabel Bacon, A.B., *Mount Holyoke College,* 1901; A.M., 1909 German Literature, Germanic Philology, English Philology.	*Dorchester, Mass.*
*Grace Wilder Bailey, Ph.B., *Hillsdale College,* 1900 Zoology, Botany, Chemistry.	*Hillsdale*
Florence Elizabeth Baker, A.B., 1909 European History, American History, Rhetoric.	*Bay City*
¶May Louise Baker, A.B., 1908 American History, Political Economy, Rhetoric.	*Bay City*
*Morrell Brainerd Baker, A.B., 1905 Physics, Organic Chemistry, Technological Chemistry.	*Saginaw*
Florence Catherine Ball, A.B., 1909 Latin, German, English.	*Detroit*
*Ernest Franklin Barker, B.S., *University of Rochester,* 1908 Physics, Mathematics, Chemistry.	*Rochester, N. Y.*

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[1] The subjects of study pursued by candidates for an advanced degree are indicated under their respective names, the subject first named being the major study. If a candidate for a master's degree is pursuing his work under Plan B (see p. 219), his subjects of study are given in parentheses. Unmarked names indicate students enrolled during the academic session of 1909-1910; those with an asterisk (*) were members of the Summer Session of 1909 only; names marked with a dagger (†) indicate students who were enrolled in both the Summer Session of 1909 and the academic session of 1909-1910; (¶) shows that the student was permitted to complete some courses *in absentia*; names marked with parallels (‖) are students who completed their undergraduate course in February, 1910, but will not take their degrees until the following commencement in June; the double dagger (‡) indicates registration in the Department of Medicine and Surgery also.

George Latta Barrus, B.S., *University of Rochester,* 1906 Forest Management, Botany, Silviculture.	*Charlotte, N. Y.*
Floyd Earl Bartell, A.B., *Albion College,* 1905, A.M., 1908 Physical Chemistry, Analytical Chemistry, Mineralogy.	*Albion*
‡Rudolph Artillus Bartholomew, A.B., 1908	*Valparaiso, Ind.*
John Montgomery Bedford, A.B., 1909 Forest Management, Botany, Silviculture.	*Beloit, Wis.*
Nellie Irene Beebe, A.B., 1904 German Literature, Roman Literature, Latin Language.	*Ann Arbor*
*Arthur Emmons Bellis, A.B., 1907 Physics, Electrical Engineering, Geology.	*Laramie, Wyo.*
†Marion LeRoy Billings, A.B., 1909 Psychology, Modern Philosophy, Education.	*Adrian*
Grace Darling Bissell, A.B., 1904 Sociology, English Literature, Rhetoric.	*Ann Arbor*
Richard Hans Douai Boerker, A.B., *Dartmouth College,* 1909 Forest Management, Botany, Silviculture.	*Brooklyn, N. Y.*
Chauncey Samuel Boucher, A.B., 1909 American History, European History, Political Economy.	*Marion, Ind.*
Herbert Eli Boyce, A.B., *Middlebury College,* 1900 Semitics, Hellenistic Greek, Greek.	*Middlebury, Vt.*
*Solomon Jeffords Brainerd, A.B., *Olivet College,* 1909 Plan B (Education. Sociology, Philosophy).	*Olivet*
*Willa Norvella Brand, A.B., *West Virginia University,* 1898 English Literature, Rhetoric, Education.	*Morgantown, W. Va.*
*James Irven Bricker, A.B., *Hillsdale College,* 1894, A.M., *ibid,* 1897 Botany. Ecology, Zoology.	*Saginaw*
Harvey Clayton Brill, A.B., *Miami University,* 1908 General Chemistry, Physical Chemistry, Mineralogy.	*Camden, O.*
Glenn B. Britton, A.B., *Miami University,* 1906; A.B., 1907, M.S., 1908 Organic Chemistry, Physical Chemistry, Mineralogy.	*Oxford, O.*
Hearty Earl Brown, A.B., 1909 Rhetoric, English, Education.	*East Lansing*
Marion Jessica Bull, A.B., *Wells College,* 1904	*Easton, Pa.*
*Charles Winfield Burchard, A.B., *Allegheny College,* 1908 General and Physical Chemistry, Organic Chemistry, Physics.	*Guys Mills, Pa.*
*Anna Mary Burkheiser, A.B., 1905 German, Mathematics, Latin.	*Ypsilanti*

*Bessie May Burnell, A.B., *Lake Erie College,* 1908 Physics, Mathematics, Chemistry.	*Greenwich, O.*
Philip Everette Bursley, A.B., 1902, A.M., 1909 French, Spanish, English History.	*Fort Wayne, Ind.*
Frederick Harrison Busby, A.B., 1909 Nervous Anatomy, Gross Anatomy, Bacteriology.	*Marshalltown, Ia.*
*Orma Fitch Butler, A.B., 1897, A.M., 1901, Ph.D., 1907	*Ann Arbor*
*Mollie Drew Butts, A.B., 1903, A.M., 1904	*Lansing*
Royal Sumner Buzzell, B.S., 1909 Hygiene, Food Analysis, Metallurgy.	*Flint*
Florence Margaret Campbell, A.B., 1909 History, Education, Rhetoric.	*Bay City*
*Harvey Blaine Campbell, B.S., 1907 Physics, Analytical Chemistry, Organic Chemistry.	*Kansas City, Mo.*
*Katherine Campbell, A.B., 1890	*Ann Arbor*
Robert John Carney, A.B., 1907 Analytical Chemistry, Organic Chemistry, Physics.	*Ann Arbor*
*Gail Luke Carver, A.B., 1907, A.M., 1908 Zoology, Mineralogy, Physics.	*Macon, Ga.*
†Earl William Castle, A.B., 1907 Astronomy, Mathematics, Insurance.	*Ann Arbor*
*Florence Marilla Cate, Ph.B., *Morningside College,* 1902 Latin, Roman Political Institutions, English.	*Winfield, Kans.*
*William Dean Chadwick, A.B., *Marietta College,* 1905 English, Rhetoric, English History.	*Albion*
Cheng Wei Chen, A.B., *Peking University,* 1896, A.M., *ibid,* 1907 European History, International Law, Political Economy.	*Peking, China*
Harold Charles Clark, B.S., *Dartmouth College,* 1908 Forest Management, Botany, Silviculture.	*Keene, N. H.*
Herman Aldrich Clark, A.B., 1909 Greek, Latin, German.	*Geneva, N. Y.*
*Harvey Fisk Clarke, A.B., *Olivet College,* 1906 Plan B (German, Education).	*Benzonia*
¶Edward Clinton Clifford, B.S., *University of Maine,* 1904 Forestry Management, Botany, Silviculture.	*Missoula, Mont.*
*Charles Wiggins Cobb, A.B., *Amherst College,* 1897, A.M., *ibid,* 1902 Mathematics, Education.	*Amherst, Mass.*
*Ernest Edwin Cody, A.B., *Albion College,* 1903 Education, American History, Sociology.	*Plainwell*

Carl Jenness Coe, A.B., 1909 Mathematics, Physics, Astronomy.	*Ypsilanti*
*Leroy Melville Coffin, B.S., *University of Maine,* 1903 Mathematics, Physics, Mathematics.	*Keuka Park, N. Y.*
Harry Newton Cole, A.B., 1901, B.S., 1906 Metallurgy, Physics, Chemical Technology.	*Ann Arbor*
*Mildred Irene Collins, A.B., 1905 Rhetoric, Aesthetics, American History.	*Chicago, Ill.*
*Harry Mason Comins, A.B., 1903 Education, American History, Political Economy.	*Saginaw*
Harriet Rice Congdon, A.B., *Mount Holyoke College,* 1898 Greek, Latin, Ancient Philosophy.	*Rochester, N. Y.*
Charles Wilford Cook, A.B., 1904, M.S., 1906 Geology, Mineralogy, Chemistry.	*Fenton*
Irwin Wycliffe Cook, B.S., *Washburn College,* 1907 Forest Management, Botany, Silviculture.	*Oberlin, Kans.*
Leigh Guillot Cooper, A.B., 1904 American History, Political Economy, Political Science.	*Detroit*
Irene Marie Cornwell, A.B., 1907 French, Spanish, Music.	*Ann Arbor*
*George Henry Coverdale, A.B., 1909 Education, Sociology, Philosophy.	*Mayville*
John Alexander Craig, A.B., 1909 Mathematics, Physics, Mathematics.	*Howard City*
Robert Craig, Jr., B.S., *Alma College,* 1908 Forest Management, Silviculture, Botany.	*Sault Ste. Marie*
Harry Wolven Crane, A.B., 1909 Sociology, Psychology, Mental Pathology.	*Big Rapids*
Corydon Patten Cronk, B.S., 1910 Forest Management, Botany, Silviculture.	*Newark, N. J.*
*D. Wilson Crouse, A.B., *Wittenberg College,* 1900, A.M., *ibid,* 1907 Physics, Electrical Engineering, Mathematics.	*Atchison, Kans.*
*Frances Norton Curry, Ph.B., *University of Wooster,* 1901 Plan B (German, Education).	*Ann Arbor*
*George Herbert Curtis, A.B., *Albion College,* 1899; A.B., 1904 Physics, Education.	*Williamston*
‖George Morris Curtis, A.B., 1910 Zoology, Embryology, Histology.	*Onondaga*
¶Harvey Lincoln Curtis, Ph.B., 1900, A.M., 1903 Physics, Mathematics, Electrical Measurements.	*Chevy Chase, Md.*
*Mary Harriet Curtiss, Ph.B., *University of Chicago,* 1905	*Crown Point, Ind.*
*Ralph William Darner, A.B., *Wittenberg College,* 1905, A.M., *ibid,* 1908 Physical Chemistry Mineralogy, Organic Chemistry.	*Wahpeton, N. Dak.*

Maud Dawson, A.B., 1908 Plan B (Vertebrate Zoology, American History, Geology).	*Mayville*
James Frank Day, A.B., *University of Utah,* 1906 Political Economy, American History, Government.	*Fillmore, Utah.*
*Mary Julia Wall Dillingham, A.B., *Indiana University,* 1907 Latin, German, English.	*Indianapolis, Ind.*
Robert James Dobson, A.B., *Albion College,* 1907 Zoology, Physics, Physical Chemistry.	*Albion*
Carolyn Hawley Dudley, A.B., *Hillsdale College,* 1902 Latin, Roman Political Institutions, Rhetoric.	*Hillsdale*
Clara Belle Dunn, A.B., 1904 Rhetoric, English Literature, German.	*Ann Arbor*
Fred Edward Dunn, A.B., *Albion College,* 1903 Plan B (American History, Political Economy, Education).	*Sandusky*
William Jacob Duppert, A.B., 1909 Forest Management, Botany, Silviculture.	*Constableville, N. Y.*
*William Duven, A.B., *Hope College,* 1908 Botany, Plant Physiology, Organic Chemistry.	*Holland*
James Bartlett Edmonson, A.B., 1906 European History, Education, American History.	*Hillsdale*
‖George Saunders Ellison, A.B., *Lincoln University,* 1900 American History, European History, Sociology.	*Dalzell, S. C.*
*Alfred Lynn Ferguson, A.B., 1908 Physical Chemistry, Physics, Philosophy.	*Ann Arbor*
*Frank Alexander Ferguson, A.B., 1908 Physics, Electrical Engineering, Chemistry.	*Alliance, O.*
*William Andrew Ferguson, A.B., 1904 Physics, Mathematics, Chemistry.	*Traverse City*
Hortense Flexner, A.B., 1907 Rhetoric, Sociology, German.	*Louisville, Ky.*
Ida Mary Forsythe, B.S., *Muskingum College,* 1900 Education, English, Rhetoric.	*Kimbolton, O.*
*Charles Smalley Foster, A.B., *Antioch College,* 1905, A.M., *ibid,* 1906 English, Rhetoric, Aesthetics.	*Kansas City, Mo.*
*Elbertie Foudray, B.S., *Northwestern University,* 1903 Physics, Chemistry, Mathematics.	*Ann Arbor*
David Friday, A.B., 1908 Finance, Economics, Sociology.	*Ann Arbor*
*Florence Myrtle Frost, A.B., *Northwestern University,* 1908 English, German Literature, Germanic Philology.	*Aberdeen, S. Dak.*

*Dorothy Fuerstenau, A.B., 1907 German Literature, Germanic Philology, English.	*Saginaw*
*Edward Everett Gallup, A.B., 1906 Education, Sociology, Psychology.	*Adrian*
Henry Mills Gelston, A.B., 1900 Latin, Greek, Ancient Philosophy.	*Ann Arbor*
Susan Beatta Gibson, A.B., *Albion College*, 1904 Latin Literature, Latin Language, German.	*Otsego*
†Quinter Olen Gilbert, A.B., 1909 Zoology, Bacteriology, Nervous Anatomy.	*Grundy Center, Ia.*
*James Boyd Gemberling, A.B., 1906	*Milan*
Henry Newell Goddard, Ph.B., 1893 Botany, Zoology, Plant Pathology.	*Waukesha, Wis.*
Nellie May Gray, A.B., 1907 Mathematics, Astronomy, Philosophy.	*Brimley*
Ruth Curtis Greathouse, A.B., 1909 Bacteriology, Organic Chemistry, Greek.	*Washington, D. C.*
Clarence Wilson Greene, A.B., 1903, A.M., 1905 Physics, Mathematics, Electrical Engineering.	*Albion*
*Hulda Augusta Haenig, A.B., 1906 Plan B (German, English).	*Ludington*
†Arthur Hamilton, A.B., *Harvard University*, 1907 French, Spanish, Italian.	*Fort Wayne, Ind.*
Stuart McCune Hamilton, A.B., 1909 Political Economy, Botany, Chemistry.	*Sheridan, Wyo.*
Ngan Han, A.B., *Cornell University*, 1909 Botany, Forest Management, Silviculture.	*Nanking, China*
†Willis E. Hanson, Ph.B., *Albion College*, 1897 Sociology, Education, Education.	*Owosso*
Herbert Aaron Hard, B.S., *Ohio Wesleyan University*, 1897 Physical Chemistry, Analytical Chemistry, Geology.	*Ann Arbor*
Anna Trail Harding, A.B., *Wellesley College*, 1907 Rhetoric, English, History.	*Philadelphia, Pa.*
*Theron Alvin Harmon, A.B., 1909 Education, Sociology, Philosophy.	*Yankton, S. Dak.*
James Elmer Harris, A.B., 1908, M.S., 1909 Physics, Physical Chemistry, Organic Chemistry.	*Bay City*
Wilmer Carlyle Harris, Ph.B., *University of Chicago*, 1904: A.M., 1909 American History, European History, Government.	*Ann Arbor*
*William Henry Hart, A.B., *Albion College*, 1904 Education, Philosophy, Education.	*Princeton*

*Ernest Clark Hartwell, A.B., *Albion College,* 1905 — *Albion*
Economics, American History, Sociology.

Wilmot W. Glidden Hastings, A.B., *Clark University,* 1908 — *Montrose, Pa.*
Forest Management, Botany, Silviculture.

Walter Clark Haupt, Ph.D., *Johns Hopkins University,* 1908 — *Baltimore, Md.*

‖Harry Gordon Hayes — *Prairie City, Ia.*
Political Economy, Sociology, Government.

Charles Augustus Heiss, A.B., *George Washington University,* 1908 — *Bloomsburg, Pa.*
Economics, Finance, German.

*Ada May Herr, A.B., *Southwestern College (Kansas),* 1907 — *Kiowa, Kans.*
Plan B (Sociology, American History).

Martha Hill, A.B., *Western College,* 1906 — *Madison, Ind.*
Plan B (German, Biology).

*Arthur Joseph Hoare, A.B., 1900, A.M., 1902 — *Wichita, Kans.*
Mathematics, Insurance.

†William James Hoover, A.B., *Albion College,* 1908 — *Ann Arbor*
Mathematics, Physics, Physics.

*Frances Powell Hooper, Ph.B., *University of Mississippi,* 1885 — *Columbus, Miss.*
Ecology, Zoology, Plant Physiology.

Louis Allen Hopkins, A.B., *Butler College,* 1905; M.S., *University of Chicago,* 1906 — *Ann Arbor*
Pure Mathematics, Astronomy, Theoretical Applied Mathematics.

*Harry Hale Howett, Ph.B., *Antioch College,* 1904 — *Monroe*
American History, English, Education.

*Nettie Elizabeth Hughes, A.B., *Tabor College,* 1892; A.B., 1909 — *Elkhart, Ind.*

Walter Frederick Hunt, A.B., 1904, A.M., 1905 — *Ann Arbor*
Mineralogy, Chemistry, Geology.

Fred Walter Hunter, B.S., *University of Rochester,* 1907 — *Rochester, N. Y.*
Physical Chemistry, Organic Chemistry, Food Analysis.

‖Henrietta Josephine Inglis — *Boulder, Colo.*
Latin, German, Mathematics.

*Wilbur Fisk Jackman, B.S., 1886, Ph.C., 1887 — *Orono, Me.*
Mineralogy, English, Physical Chemistry.

*Frank C. Janes, B.S., *Albion College,* 1898 — *Belding*
History of Education, Educational Theories, American History.

†German Levant Jenner, A.B., 1909 Physics, Mathematics, Physics.	***Ann Arbor***
*Jay Howard Johnson, A.B., 1909	***Ann Arbor***
Eugene William Johnston, B.S., 1909	***Lyndon Centre, Vt.***
Dorothea Jones, A.B., 1909 French Literature, French Philology, English.	***Harrisburg, Pa.***
Homer Walker Josselyn, A.B., 1905 Education, American History, Sociology.	***Detroit***
Harry Edwin King, B.L., 1891, A.M., 1902 History, International Law, Political Institutions.	*Ann Arbor*
*Helen Beecher King, Ph.B., 1894 Botany, Zoology, Zoology.	***Flint***
Katharine Philcetta King, A.B., 1909 German Literature, Germanic Philology, French Literature.	***Ann Arbor***
Rexford King, A.B., 1910 Forest Management, Botany, Silviculture.	*Sidney, N. Y.*
Frederica Dorothy Klingmann, A.B., 1908 German, Italian, Spanish.	*Ann Arbor*
Arthur Charles Klocksiem, A.B., *German Wallace College,* 1898, A.M., *ibid,* 1899; A.M., 1908 German Literature, Germanic Philology, English Literature.	*Cleveland, O.*
William Fredrick Koch, A.B., 1909 Physiology, Histology, Embryology.	***Detroit***
Matthew Kollig, A.B., 1904, M.D., 1907 Anatomy, Pathology, Hygiene.	*Ann Arbor*
Edward Irving Kotok, B.S., *College of the City of New York,* 1909 Forest Management, Silviculture, Botany.	*New York, N. Y.*
*Carrie Krell Plan B (English, German).	*Chelsea*
James Graham Lake, A.B., 1909 American History, Education, English History.	*Sault Ste. Marie*
Louis Theodore Larsen, A.B., 1909 Forest Management, Botany, Silviculture.	***Chicago, Ill.***
Rosco Genung Leland, A.B., 1907, M.D., 1909 Pathology, Hygiene, Embryology.	*Ann Arbor*
*W. Glen Lewis, B.S., *Columbia University,* 1909 Physics, Physical Chemistry.	*Ypsilanti*
*George Allan Lindsay, A.B., 1905, A.M., 1908 Physics, Mathematics, Astronomy.	*Saint Louis, Mo.*
*Fred Aaron Loew, B.S., *Central College (Indiana),* 1902; B.S., *Michigan Agricultural College,* 1904 Ecology, Mineralogy, Plant Physiology.	*Huntington, Ind.*
†Chester Miller Loomis, A.B., 1909 Sociology, English, Oratory.	*Clayton*

Clyde Elton Love, A.B., 1905, A.M., 1908 *Ann Arbor*
Mathematics, Mathematical Physics, Astronomy.

Albert Joseph Lubbe, A.B., 1909 *Quincy, Ill.*
English, Rhetoric, Sociology.

Marcia Benvenuta Lutz, A.B., *Albion College,* 1904 *Albion*
German Literature, French Literature, English.

‖Mary Ellen Lynch *Grand Rapids.*
French, Spanish, Education.

Roy Kenneth McAlpine, A.B., 1906 *Jackson*
Analytical Chemistry, Organic Chemistry, Education.

*Arthur Louis McCarty, A.B., 1908 *Columbia City, Ind.*
Mathematics, Physics, History of Education.

*John James McElree, A.B., *Westminster College,* 1890 *New Wilmington, Pa.*
Latin, Greek, Roman Political Institutions.

Mary Elizabeth McIlhenny, A.B., *University of Illinois,* 1904 *Macomb, Ill.*
German Literature, Germanic Philology, English.

Sarah Davina MacKay, A.B., *University of Illinois,* 1907 *Mount Carroll, Ill.*
Psychology, Physiology, Anatomy.

Fred Maecherlein, B.S., *University of Rochester,* 1909 *Rochester, N. Y.*
Forest Management, Silviculture, Botany.

*¶Raymond Earl Manchester, A.B., 1909 *Battle Creek*
English, Ethics, History of Education.

*Minnie Maude Manley, A.B., 1905 *Caro*
Latin, German Literature, Germanic Philology.

*Hermine Mann, A.B., 1909 *Chicago, Ill.*

John Buckingham Mare, B.S., *Washington University,* 1908 *Saint Louis, Mo.*
Mineralogy, Petrography, Geology.

‖Harry Boyd Maris *Stockton, Kans.*
Forest Management, Botany, Silviculture.

*William Orville Mendenhall, A.B., *Penn College,* 1900, A.M., *ibid,* 1901; A.B., *Haverford College,* 1901 *Earlham, Ind.*
Mathematics, Insurance, Astronomy.

*Emerson Romeo Miller, Ph.C., 1892, Ph.M., 1893, B.S., 1894, M.S., 1895 *Auburn, Ala.*
Organic Chemistry, Plant Physiology, Pharmacognosy.

*Ina Annette Milroy, Ph.D., *University of Berlin,* 1904 *Ann Arbor*

*LeGrand Morell, B.S., *Albion College,* 1901 *Midland*
Physics, Chemistry, Education.

Plinn Frederick Morse, A.B., 1907, M.D., 1909 *Ann Arbor*
Pathology, Bacteriology, Physiological Chemistry.

*Margaret Parthenia Murrell, A.B., 1902 English, Latin, Aesthetics.	*Decatur, Ill.*
*Seaton Anderson Norcross, Ph.B., *Adrian College,* 1903; A.B., 1907	*Ann Arbor*
Charles Walter Obee, Ph.B., *Adrian College,* 1906, A.M., *ibid,* 1908	*Ann Arbor*
John W. Olthouse, A.B., 1909 German Literature, Germanic Philology, English.	*Grand Rapids*
*Clyde Safford Paxton, A.B., 1906 Physics, Mathematics, Electrical Engineering.	*Marshall*
*Mabel Adaline Pearl, A.B., *Oberlin College,* 1907 Plan B (Physics, Geology).	*Norwalk, O.*
†‡Max Minor Peet, A.B., 1908 Zoology, Bacteriology, Zoology.	*Iosco*
Charles Milton Perry, A.B., *Albion College,* 1900 Philosophy, Metaphysics, Economics.	*Coldwater*
*Artie Katharine Peyton, A.B., B.S., *Mississippi Industrial Institute and College,* 1904 Zoology, Embryology, Botany.	*Columbus, Miss.*
*Frank Jay Phillips, B.S., *Michigan Agricultural College,* 1903; A.B., 1905, M.S., 1906 Plant Physiology, Forest Mensuration, Dendrology.	*Lincoln, Neb.*
*Hermon Carleton Pitton, B.S., *Union College,* 1904 American History, International Law, Political Economy.	*Stanton*
Vincent Collins Poor, A.B., *University of Kansas,* 1901; M.S., *University of Chicago,* 1907 Pure Mathematics, Applied Mathematics, Astronomy.	*Ann Arbor*
Katherine Cecilia Post, A.B., 1909 European History, Education, American History.	*Holland*
Frank Fraser Potter, A.B., 1902, A.M., 1903 Latin, Greek, Ancient Philosophy.	*Ann Arbor*
David Wight Prall, A.B., 1909 German Literature, Germanic Philology, English Philology.	*Saginaw*
¶John Frederick Preston, A.B., 1907 Forest Management, Silviculture, Botany.	*Red Lodge, Mont.*
Frank Uriah Quillin, A.B., *Ohio Wesleyan University,* 1903; A.M., *Harvard University,* 1905 American History, Sociology, Economics.	*Ypsilanti*

Quincy Randles, B.S., *University of Wooster,* 1908 Forest Management, Silviculture, Botany.	*Warsaw, O.*
Webster Hamilton Ransom, A.B., 1909 Forest Management, Silviculture, Botany.	*Sandusky*
William Ober Raymond, A.B., *University of New Brunswick,* 1902 Philosophy of Religion, Metaphysics, Hebrew.	*Saint John, N. B.*
*Cora Daisy Reeves, A.B., 1906 Zoology, Entomology, Botany.	*Chicago, Ill.*
*Edgar Nevin Rhodes, A.B., *Ursinus College,* 1908 Education, Psychology, Sociology.	*Pittsburg, Pa.*
Daniel Leslie Rich, A.B., *Waynesburg College,* 1902; A.M., 1909 Physics, Mathematics, Electrical Engineering.	*Pittsburg, Pa.*
*Homer Elmer Robbins, A.B., 1905, A.M., 1906 Latin, Greek, Ancient Philosophy.	*Washington, Pa.*
*Floyd Wellington Robison, B.S., *Michigan Agricultural College,* 1898 Physiological Chemistry, Hygiene, Organic Chemistry.	*Lansing*
Irma Rodi, A.B., 1908 Philosophy, Psychology, English.	*Calumet*
*Eugene Charles Rowe, A.B., *Olivet College,* 1897; Ph.D., *Clark University,* 1908	*Mount Pleasant*
James Blaine Saxton, A.B., 1909 Forest Management, Botany, Silviculture.	*Blissfield*
Burton William Scheib, A.B., *Park College,* 1908 Botany, Geology, Plant Physiology.	*Hilton, N. Y.*
†Mabel Hoffmann Schell, A.B., *University of Cincinnati,* 1903 Plan B (German, Romance Languages).	*Cincinnati, O.*
*Otto Hugo Adolf Schenk, A.B., 1908 Mineralogy, Chemistry, Geology.	*Brantford, Ont.*
Harry C. Schlatter, B.S., 1909 Plan B (General Chemistry, Analytical Chemistry).	*Fort Wayne, Ind.*
Anton Augustus Schlichte, B.S., 1909 Organic Chemistry, Physics, Chemical Technology.	*Chicago, Ill.*
Helen Ballard Schmitz, A.B., *Wilson College,* 1902 Latin, German Literature, Germanic Philology.	*Washington, Pa.*
*Carl Frederick Schreiber, A.B., 1907 German Literature, Sociology, Germanic Philology.	*Saginaw*
Irving Day Scott, A.B., *Oberlin College,* 1900; A.M., 1907 Geology, Physiography, Mineralogy.	*Ann Arbor*

Roy Lyman Sessions, A.B., 1909 Organic Chemistry, Chemical Technology, Physics.	*Grand Rapids*
*Jay Wesley Sexton, B.S., *Albion College*, 1907 Education, American History, Sociology.	*Fenton*
Clara Belle Shaffer, A.B., *Albion College*, 1907 English, European History, American History.	*Albion*
*Fern L. Shannon, Ph.C,. B.S., 1909 Botany.	*Detroit*
†Rufus Clark Shellenbarger, A.B., *Wittenberg College;* 1896, A.B., 1903, A.M., 1907 Physics, Mathematics, Electrical Engineering.	*Yankton, S. Dak.*
Edwin Clytus Shepard, B.S., *Colgate University*, 1909 Forest Management, Botany, Silviculture.	*Watertown, N. Y.*
John Meyer Slagh, A.B., *Hope College*, 1907; A.B., 1909 Latin, Greek, Roman Political Institutions.	*Holland*
†William Warner Sleator, A.B., 1909 Physics, Mathematics, Electrical Engineering.	*Ann Arbor*
*Benjamin Franklin Smith, A.B., 1908 Plan B (English, Rhetoric, Philosophy).	*Toledo, O.*
*Clyde Marsh Smith, A.B., 1909 English, American History, Oratory.	*Pinckney*
Raymond Judson Smith, B.S., *University of Maine*, 1908 Forest Management, Silviculture, Botany.	*Skowhegan, Me.*
Richard A. Smith, A.B., 1909 Geology, Mineralogy, Economic Geology.	*Ann Arbor*
Seward Dwight Smith, A.B., 1910 Forest Management, Silviculture, Botany.	*Chili Sation, N. Y.*
*Gertrude E. Spencer, A.B., 1907 German Literature, Germanic Philology, Education.	*Webberville*
*Alfred Springer, Jr., A.B., *Yale University*, 1909 Organic Chemistry, Physical and General Chemistry.	*Norwood, O.*
†Adaline Eugenia Stanley, B.S., *Lebanon University*, 1902, A.B., *ibid*, 1906; A.M., 1909	*Stanleyville, O.*
Anna Breese Steele, A.B., 1909 German Literature, American History, English.	*Ann Arbor*
*Stella Mathilde Stein, A.B., *University of Pittsburgh*, 1898, A.M., *ibid*, 1901 German Literature, Germanic Philology, English.	*Pittsburg, Pa.*
Frank Howard Stevens, B.S., *University of Chicago*, 1908 Pure Mathematics, Applied Mathematics, Astronomy.	*Ann Arbor*

*Katherine Mitchell Stewart, Ph.B., 1898 Mathematics, Physics, Physics.	*Calumet*
Norman Hamilton Stewart, A.B., *University of Rochester,* 1908 Zoology, Botany, Zoology.	*Rochester, N. Y.*
Margaret Stockbridge, A.B., 1908 German, American History, English.	*Ann Arbor*
*Herbert King Stone, A.B., 1905 French, Spanish, English.	*New Orleans, La.*
Heber Gillespie Stout, A.B., 1909 Forest Management, Botany, Silviculture.	*Traverse City*
*Anna Muriel Streibert, A.B., 1907	*Ann Arbor*
Arthur Floyd Strome, A.B., 1904, A.M., 1909 American History, European History, Government.	*Ann Arbor*
Sylvester William Strothman, A.B., 1909 Forest Management, Botany, Silviculture.	*Milwaukee, Wis.*
Norine Helena Sullivan, Ph.B., *Alfred University,* 1902 German Literature, French Literature, French Philology.	*Stockton, N. Y.*
*Florence Sunderland, A.B., 1903 European History, American History, Education.	*Hartford, Conn.*
*Thomas Arthur Taper, B.S., 1900	*Lake Linden*
*Anna May Tate, A.B., *Oberlin College,* 1900 English, Rhetoric, Oratory.	*Akron, O.*
*Leo Thomas, A.B., 1908 Botany, Mycology, Zoology.	*Troy, O.*
Crystal Thompson, B.S., 1909 Zoology, Paleontology, Zoology.	*Ann Arbor*
Helen Beulah Thompson, A.B., 1909 English, Rhetoric, Zoology.	*Bad Axe*
Paul Dean Thompson, A.B., *University of Nebraska,* 1909 Latin, Greek, Roman Political Institutions.	*Garden City, Kans.*
Lambert Thorp, B.S., *Massachusetts Institute of Technology,* 1906 General Chemistry, Philosophy, Physical Chemistry.	*Cincinnati, O.*
*Harry Conrad Thurnau, A.B., 1899, A.M., 1903 German Literature, Germanic Philology, English Literature.	*Ann Arbor*
*Fred Alfred Tiedgen, A.B., *Olivet College,* 1900 Education, Latin, Education.	*Mason*
Frank Gerow Tompkins, A.B., 1907 Rhetoric, English, Aesthetics.	*Battle Creek*
*Luella Townley, A.B., 1904 Rhetoric, English, French.	*Cleveland, O.*

Martin B. Travis, A.B., 1909 Plan B (Education, Philosophy, History).	*Clarkston*
*Benjamin Harrison Turner, A.B., *Richmond College,* 1907 History, Economics, Sociology.	*Richmond, Va.*
*Louisa Amelia VanDyke, A.B., 1904 Mathematics, Education, Physics.	*Greencastle, Ind.*
Catherine Van Gorden, A.B., 1906 English, Rhetoric, Oratory.	*Hamilton, O.*
*John Van Haitsma, A.B., 1909 Plan B (Botany, Zoology, Physics).	*Falmouth*
Louise Van Voorhis, A.B., 1909 Rhetoric, English, Sociology.	*Evanston, Ill.*
†Agnes Carr Vaughan, A.B., *Galloway College,* 1907 Greek, Latin, German.	*Ann Arbor*
*Clara Vierling, A.B., *Indiana University,* 1903 Plan B (History, English, Latin).	*Princeton, Ind.*
Claude Herold Virts, A.B., *Wabash College,* 1909 Forest Management, Botany, Silviculture.	*Crawfordsville, Ind.*
Sophia Voorhees, A.B., *Wellesley College,* 1895 Plan B (Latin, Greek).	*Baldwinsville, N. Y.*
†Julius Franklin Vornholt, A.B., *Ohio State University,* 1898; A.M., 1909 Philosophy of Religion, Metaphysics, Hellenistic Greek.	*New Bremen, O.*
*Walter Hiram Wadleigh, A.B., 1907 Physics, Astronomy, Mathematics.	*Parkville, Mo.*
*Adam Alexander Walker, A.B., 1906 Political Economy, Government, American History.	*Lisbon, N. Y.*
*Howard LeRoy Wallace, B.S., *Hanover College,* 1907 Botany, Zoology, Plant Physiology.	*Knoxville, Tenn.*
Alice Evelin Waters, A.B., *Smith College,* 1909 German, History, Education.	*Pultneyville, N. Y.*
Frederick William Weck, A.B., *Indiana University,* 1905, A.M., 1907 German Literature, Germanic Philology, English.	*Ann Arbor*
Louise Pauline Weinmann, A.B., 1898 Plan B (German, Mathematics).	*Ann Arbor*
William Edward Wells, Ph.B., *Iowa College,* 1893; M.S., *Denison University,* 1897 Geology, Zoology, Botany.	*Granville, O.*
Clarence Jay West, B.S., 1909 Organic Chemistry, Physical Chemistry, Physics.	*Franklin*

*James Ervin Weyant, A.B., *Albion College,* 1901 Physics, Physical Chemistry, Physics.	*Indianapolis, Ind.*
*Charles Erna White, A.B., 1906 American History, European History, Education.	*Monroe*
Maurice Alton Wilder, B.S., *University of Rochester,* 1908 Physics, Mathematics, Physical Chemistry.	*Rochester, N. Y.*
Cecil Heyward Williams, A.B., 1906 German Literature, Germanic Philology, English Philology.	*Marquette*
‡Frankwood Earl Williams, A.B., *University of Wisconsin,* 1907 Bacteriology, Physiology, History.	*Orchard Lake*
Neil Hooker Williams, B.S. (E.E.), 1893, M.S., 1895 Physics, Mathematics, Electrical Engineering.	*Ann Arbor*
*Carl Burghardt Wilson, A.B., *Oberlin College,* 1906, A.M., *ibid,* 1909 Botany, Zoology, Ecology.	*Oberlin, O.*
Orrin Bowman Winter, A.B., 1909 Organic Chemistry, Physics, Physical Chemistry.	*Grand Rapids*
*Charles Henry Woolbert, A.B., *Northwestern University,* 1900 English, Oratory, Rhetoric.	*Albion*
*James Snowden Worrall, B.S., *Ohio Wesleyan University,* 1907 English, German. Education.	*Delaware, O.*
Archie Garfield Worthing, A.B., *University of Wisconsin,* 1904 Physics, Mathematics, Thermodynamics.	*Ann Arbor*
‖Florence Sarena Wright Latin, German, English.	*St. Louis*
†Elizabeth Dorothy Wuist, A.B., *Maryville College,* 1905; A.B., 1908, M.S., 1909 Plant Physiology, Cryptogamic Botany, Invertebrate Zoology.	*Dayton, O.*
‖Pauline Wurster Hygiene, Physiological Chemistry, German.	*Ann Arbor*
*Merle Carlyle Yokum, A.B., *Albion College,* 1905 History of Education, American History, Educational Theories.	*Rochester*
Leigh Jarvis Young, A.B., 1909 Forest Management, Botany, Silviculture.	*Kirkwood, Mo.*

UNDERGRADUATES*

NAME	CREDIT	RESIDENCE
Waldo Mack Abbot	64	*Washington, D C.*
Christopher Joseph Abbott		*Hyannis, Neb.*
Harold Baker Abbott		*Ann Arbor*
Fern Abrams	56	*Kalamazoo*
Lawrence Brundage Abrams	32	*Orange, N. J.*
Etta Louise Acuff	30	*Rupert, Idaho*
Carl Henry Oscar Adam, *l*	108	*Indianapolis, Ind.*
Alice Dunning Adams	61	*Prescott, Ariz.*
Florence Emma Adams		*Newton Upper Falls, Mass.*
Henry Carter Adams, Jr.		*Ann Arbor*
Iva Dell Adams	59	*Ann Arbor*
Marguerite Elizabeth Adams	58	*Ann Arbor*
Grace Margaret Albert	30	*Tecumseh*
Jo Reed Alden	94	*Grand Rapids*
Whiting Alden	101	*Fort Wayne, Ind.*
Catherine Caroline Alexander	30	*Iron Mountain*
Edna Mitchell Allen	96	*Ithaca*
Ella Olive Allen		*Marshall*
Henry Clement Allen		*Independence, Ia.*
August William Allendorf		*Sandusky, O.*
Werner Stillwell Allison	S	*Rochester, N. Y.*
Young Ewing Allison, Jr.	62	*Louisville, Ky.*
Harry Knaupp Allwardt	46	*Battle Creek*
George Isaac Altenburg		*Belding*
John Burton Ames	26	*Stoughton, Wis.*
Bertha Agnes Ammon	88	*Detroit*
Arthur Lewis Amolsch		*Laurium*
Richards Ellison Amos		*Ironton, O.*
Rilla Agnes Amsbury	S	*Hiteman, Ia.*
Blanche Wilburetta Anderson	28	*Ann Arbor*
Bruce E. Anderson		*Pueblo, Colo.*
Frank Sears Anderson, *l*	96	*Lockport, N. Y.*
George Albert Anderson	61	*Qunicy, Ill.*

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*The figures in the columns headed Credit indicate the number of hours of work taken by candidates for a degree prior to the beginning of the current academic year, 1909-1910, and completed without conditions, or credited to them on advanced standing. By an hour of work is meant the equivalent of one exercise a week for one semester. The letter S indicates that the student is pursuing miscellaneous studies without being registered as a candidate for a degree. A dagger (†) preceding a student's name indicates that he also pursued studies, for the whole or a part of the year, in some other Department of the University, indicated by an italic letter following the name, to-wit: *e*, Department of Engineering; *m*, Department of Medicine and Surgery; *l*, Department of Law; *p*, School of Pharmacy; *h*, Homœopathic Medical College; *d*, College of Dental Surgery. The letter following the name (without the dagger) indicates that the student is pursuing a combined course, leading to a degree in each of the two Departments.

James Gladstone Anderson		*Calumet*
Katherine Helene Anderson	78	*Sidney, O.*
Ruth McClure Anderson	99	*Denver, Colo.*
Alden Andrews, Jr.	30	*Hamilton, O.*
Gould Arthur Andrews	30	*Holly*
Carrie Belle Andrus	55	*Hastings*
Claude Annan	22	*Clarinda, Ia.*
Rocco Antonelli		*Youngstown, O.*
Claribel Armitage	60	*Detroit*
Lewis John Armstrong	26	*Ann Arbor*
LeGrande Jenks Arnold		*Harbor Beach*
Kenneth Alexander Arthur	93	*Detroit*
Dwight Elias Austin		*Springville, N. Y.*
Edward Clarke Austin		*Battle Creek*
Ralph Williams Aye	98	*Beaver Falls, Pa.*
Hugh Day Backus		*Minneapolis, Minn.*
Helen Bacon	26	*Ann Arbor*
Adah Baer	43	*Toledo, O.*
Mervin Kaufman Baer	93	*Hancock*
Clarence Morris Bahr	30	*Hollenback, Pa.*
†Theodore Mead Bailey, *l*	105	*Sioux Falls, S. Dak.*
Harry Francis Baker	61	*Dayton, O.*
Hollis Siebe Baker, *l*	94	*Allegan*
Horace Burrington Baker	92	*Ann Arbor*
Howard Thornburg Baker		*Williamsport, Pa.*
Kelts C. Baker	69	*Greenwood, N. Y.*
Robert Harper Baker		*Bay City*
Vivian D. Baker	55	*Union City*
Marjorie Gladys Baldwin	30	*Monroe*
Ray Holley Baldwin	59	*Ann Arbor*
Mary Ethel Ballard	48	*Sparta*
Alva Leonard Balsam		*Manistee*
Carl Henry Volz Bambam	18	*Buffalo, N. Y.*
Edith Loraine Bandfield	61	*Portland*
Floyd Austin Barber	88	*Howard City*
Roy Edward Henry Baribeau	27	*Grand Ledge*
Arthur Gerald Barnard	61	*Detroit*
Alice Louise Barnes	89	*Ann Arbor*
Cliff MacFarlin Barnes		*Elkhorn, Wis.*
Leola Barbara Barnes	2	*Battle Creek*
William Hutt Barnes, *m*	S	*Ann Arbor*
Amy Carolyn Barnum		*Iron River*
Howard Fred Barnum		*Manlius, N. Y.*
Anthony Patrick Barrett		*Waterbury, Conn.*
Leslie Park Barrett	55	*Ann Arbor*
†Raymond Ralph Berry, *e*	14	*Chicago, Ill.*
Grover Cleveland Bartoo	84	*Mills, Pa.*
Irving Miles Bassett		*Coldwater*
Ray Emmet Bassett		*Ann Arbor*

Benjamin Theodore Batsch		*Dunkirk, Ind.*
John Albert Bauer		*Lawrenceburg, Ind.*
Harry Kostamo Bay		*Ironwood*
Adele Frost Bayley		*Mason*
LeRoy D. Beachler		*Union City, Ind.*
Jean Margaret Beard		*Detroit*
Don Lyman Beardslee	26	*Greenville*
Kathlyn Marguerite Beardsley	63	*Ann Arbor*
Theodore Hallett Bearse	63	*LaGrange, Ill.*
Homer Milo Beattie	43	*Norwalk, O.*
Frank E. Bechman .	62	*Battle Creek*
Katherine Maxmilian Bechtold	56	*Bellaire*
Oscar Beckmann		*Toledo, O.*
Henry Dana Bedford	18	*Waldron*
Julius Lanson Beers		*Traverse City*
Harvey Cleveland Beeson	S	*Detroit*
George Andrew Beis	34	*Sandusky, O.*
Hubert Edwin Bell	56	*Union City*
Joseph John Bell		*Birch Run*
Rosa Bell	58	*Detroit*
Howard Hartzler Beltz	89	*Akron, O.*
Olive Benbrook	51	*Chicago, Ill.*
Leray Doig Benedict		*Ypsilanti*
Elizabeth Catherine Benjamin	61	*Wyandotte*
Julien Emil Benjamin, *m*	92	*Cincinnati, O.*
Max Bennett	72	*Cedar Rapids, Ia.*
Maynard Gillmore Bentley	18	*Hamburg, N. Y.*
Fred James Benson		*Hagerstown, Ind.*
Albert Ray Benua	58	*Salem, Ind.*
Frank Basil Bernard	26	*Reesville, O.*
William Adam Bertsch, *l*	92	*Indianapolis, Ind.*
Irene Arnetta Bigalke		*Ann Arbor*
William Edmund Biggers	30	*Detroit*
Fannie Bernice Biggs	91	*Ann Arbor*
Ruth Bernice Binns		*Grand Rapids*
Dwight Cullom Birch	60	*Orland, Cal.*
Bertha Bird	30	*Azalia*
Harriet Louise Bird	34	*Ann Arbor*
Madeline Louise Bird		*Detroit*
Dion Scott Birney	50	*Washington, D. C.*
Leland Stanford Bisbee		*Bad Axe*
Erma Augusta Bishop	56	*Cadillac*
Mary Emmeline Bishop		*Dowagiac*
Allan Rust Black		*Lansing*
Harry Billings Black		*Flint*
Joseph George Black, *l*	92	*Ann Arbor*
Thomas Earl Howard Black	62	*Ann Arbor*
William Franklin Black		*Mansfield, O.*
Judson Wright Blackmon	79	*Minnewaukan, N. Dak.*

Jennie Elizabeth Blades		*Hamburg*
Harold Blair	85	*Mount Clemens*
Benjamin Frank Blanchard	64	*Shelbyville, Ind.*
Ralph Joseph Block	61	*Cherokee, Ia.*
Solomon Blumrosen	61	*Sault Ste. Marie*
Heinrich Otto Boesser	98	*Ann Arbor*
Tracy Carl Bogart		*Gloversville, N. Y.*
Henry Charles Bogle		*Ann Arbor*
Thomas Ashford Bogle, Jr.	26	*Ann Arbor*
Arthur William Bohnsack	93	*Chicago, Ill.*
Perth Theodore Boice		*Port Huron*
*Mary Eva Boiteau	88	*Bay City*
Cornelius Frederick Bolt	89	*Grand Haven*
Francis Bonebrake		*Topeka, Kans.*
Juan Antonio Bonilla		*Cali, Colombia, S. A.*
Lucy Judith Bonino		*Ironwood*
Mary Campbell Bonner	27	*Nashville, Tenn.*
Richard F. Boonstra, *m*	66	*Zeeland*
Albert Stephens Borgman	60	*Detroit*
Raymond Ezra Bostick	55	*Manton*
Erwin Parsons Bosworth		*Cincinnati, O.*
Frances Marcella Bourns	68	*Sherwood*
Charles Clark Bowen, 2nd	38	*Detroit*
Edgar Woodbury Bowen	112	*Detroit*
Julian Perry Bowen	103	*Detroit*
Etta Adele Bowerman	92	*Scottsville, N. Y.*
Elizabeth Hope Bowlby	30	*Ovid*
Charles Allen Bowman	77	*Kansas City, Kans.*
James Bruce Boyd		*Mount Oreb, O.*
Sidney DeLos Boyden	36	*Kalamazoo*
Ben Birchall Boynton, *l*	92	*Pleasant Plains. Ill.*
Lilian Farrand Boynton	70	*Saginaw*
Stella Lillion Bradbury	8	*Chicago, Ill.*
Edith Hilary Brady	88	*Saginaw*
Robert Fite Brady	24	*Union City, Ind.*
Philip Jacob Braun		*Petoskey*
Claude Brechner	38	*LaFontaine, Ind*
Alvin August Breitenwischer	24	*Manchester*
George Brethouwer		*Oostburg. Wis.*
Albert Kenneth Bridge		*Charlevoix*
Mary Ruth Bridge		*Detroit*
John Crowe Brier	20	*Jamestown, N. Y.*
Elizabeth Briggs	94	*Seneca Falls, N. Y.*
Lucile Kathryn Briggs	30	*Schoolcraft*
Lillian Alice Brock	92	*Hancock*
Charles Loren Brooks	20	*Ann Arbor*
Herman Brosowska	60	*Detroit*
Andrew Hiram Brown	57	*Washington. D. C.*
Clifford Vance Brown	56	*Ann Arbor*

Dorothy Miles Brown	52	*East Lansing*
Elmer John Brown	8	*Northville, N. Y.*
Ione Olive Brown	30	*Iron Mountain*
Lillian Wells Brown		*Ann Arbor*
Eilene Mae Browne	72	*Pontiac*
Erma Blanche Bruce	95	*Leavenworth, Kans.*
Leo Lewis Bruder		*Brooklyn, N. Y.*
Leo John Brueckner	18	*Alpena*
Lyman Lloyd Bryson	91	*Omaha, Neb.*
M. Eleanor Buchanan	69	*Petoskey*
Mary Jeannette Buck	101	*Detroit*
Zeltah Pauline Buck		*Vassar*
Cyril N. Bullock		*New Lothrop*
Edward Taylor Bullock	101	*New York, N. Y.*
Gertrude Marvin Burbank		*Toledo, O.*
James Dennis Burby	77	*Ann Arbor*
Marguerite Burdsal		*Three Rivers*
Ruth Burdsal		*Three Rivers*
Allen Homer Burket	59	*Claysburg, Pa.*
Adele Burnham	55	*Ann Arbor*
Mildred Mary Burns	60	*Monroe*
Ernest Richmond Burton	4	*Oak Park, Ill.*
Frank Jermaine Bury	43	*Detroit*
Paul D. Busby		*McAlester, Okla.*
Carl Julius Bush	S	*Ann Arbor*
Claude Augustus Bush	10	*Warsaw, N. Y.*
Helen Marie Butler		*Elk Rapids*
Marshall Herbert Butters		*Ludington*
†Aaron Chapman Button, *e*	33	*Farmington*
Laura Elsie Butts	30	*Jamestown, N. Y.*
Timothy Cornelius Caddigan, *m*	S	*Johnson, N. Y.*
Adah Mae Caldwell	42	*Cass City*
Grace Cameron	60	*Ann Arbor*
Alice Martha Campbell	30	*Ypsilanti*
Arthur James Campbell	71	*Detroit*
Douglas Campbell	68	*Detroit*
Eugene Reynolds Campbell	64	*Plymouth*
Grace Court Campbell	91	*Ann Arbor*
Robert Phillips Campbell	30	*Detroit*
Wallter Moore Campbell	20	*Gladwin*
Nellie Canright	94	*Grand Rapids*
Gerald Tompkins Canton	88	*Brooklyn, N. Y.*
Mary Etta Carey		*Wilmington, O.*
Leola Maud Carleton	105	*Detroit*
Sten Ivar Carlson	62	*Crystal Falls*
Otto C. Carpell	32	*Saginaw*
Alice Olivia Carpenter	90	*Ithaca*
Howard Wiltse Carpenter	104	*Big Rapids*
Lela Elizabeth Carpenter		*Detroit*

Lowell Juilliard Carr	44	*Bucyrus, O.*
Helen Willard Carrett	93	*Niles*
Amy Carroll	93	*Richmond, Ind.*
Mabel Carroll	90	*Richmond, Ind.*
Harriett Carroll	8	*Benton Harbor*
Sadie Elizabeth Carson	86	*Ann Arbor*
Elbert Armstrong Carter		*Defiance, O.*
Hazel Estelle Carter	60	*Toledo, O.*
Howard Herbert Cary	39	*Detroit*
Vivian Sydney Case	30	*Ann Arbor*
Sophia Cassidy		*Ann Arbor*
Lounsbury D. Castle		*Traverse City*
Nellie May Catton	88	*Benzonia*
Katrina Mary Caughey	58	*Ann Arbor*
George Peck Caulkins	6	*Detroit*
Stella Marie Cavanaugh		*Ann Arbor*
Carl Louis Centlivre	55	*Fort Wayne, Ind.*
Stella Chalmers	8	*Toledo, O.*
Marjorie Chaney	61	*Detroit*
Aaron Lee Chapman	24	*Walled Lake*
Iva Josephine Chapman	25	*Ann Arbor*
John Gage Chapel	56	*Kalamazoo*
Merlyn Arms Chappel	60	*Batavia, N. Y.*
Gladys Juanita Chappell	46	*Detroit*
Laura Esther Christensen	48	*Greenville*
Harold Graves Christopher	34	*Benton Harbor*
Ada Belle Clark	93	*Bloomington, Ill.*
Anna Elizabeth Clark	S	*Wyandotte*
Catherine Frances Clark	47	*Clinton*
Fay Goodcell Clark	66	*San Bernardino, Cal.*
Gordon McCall Clark, *m*	93	*Potsdam, N. Y.*
Harold Edward Clark	34	*Detroit*
Lawrence Dean Clark	30	*East Las Vegas, N. M.*
Ralph Bishop Clark		*Wyandotte*
Reginald Elliott Clark	S	*Gatooma Siding, South Rhodesia, S. Africa.*
Romaine Clarke	24	*Caro*
William Eugene Edward Clark	34	*Munising*
Corwin Stanton Clarke, M.D.		*Ann Arbor*
Emma Edith Clarke	92	*Spokane, Wash.*
John Dwight Clarkson	22	*Tecumseh*
Mary Louise Clawson		*Detroit*
Pearl Fuller Clemo	87	*Ann Arbor*
Eunice Jeannette Cleveland	95	*Naples, N. Y.*
Robert William Clewell	32	*Dubuque, Ia.*
Harold Hazeltine Clifford, *l*	114	*Baker City, Ore.*
Paul Francis Clifford	40	*Colchester, Conn.*
Ralph K. Clifford		*Kokomo, Ind.*

†Thomas Percival Clifford, A.B., *Delmt. College, m*		*Detroit*
Katherine Anne Coates		*Ann Arbor*
Mary Jeannette Coates	48	*Ann Arbor*
Ruth Emma Cochran	92	*Peru, N. Y.*
William Otis Cochrane	94	*Mount Vernon, N. Y.*
Livy Marion Coe		*Centralia, Ill.*
David Harold Colcord	30	*Coudersport, Pa.*
Carlos Cummings Cole	90	*Paw Paw*
Conscello Jessellen Cole	50	*Ann Arbor*
Inez Elvira Cole	56	*Fowlerville*
Iva Blanche Colegrove	34	*Ann Arbor*
Wendell Phillips Coler		*Ann Arbor*
Esther Lillian Collins		*Oakfield, N. Y.*
Helen S. Collins	30	*Coldwater*
Reginald Abram Collins	31	*Washington, D. C.*
Viona Colman		*Akron, N. Y.*
Levi B. Colvin	30	*Pontiac*
George Combs	56	*Moscow*
Alfred Dunlap Conant	15	*Plainfield, N. J.*
Charlotte Coney	56	*Allegan*
Hope Griswold Conklin	103	*Ann Arbor*
Louise Ward Conklin		*Ann Arbor*
Victor Tuttle Conklin	60	*Hartford*
Anne Irene Connell	110	*Marquette*
Mildred Marie Connely	90	*Adrian*
Frank Elmer Connor	95	*Owosso*
Nellie Blythe Connor	93	*Detroit*
Charles Junius Conover	55	*Coldwater*
Carroll C. Cook		*Canton, O.*
Helen Hopkins Cook	97	*Marshall*
Laurence Louis Cook		*Flint*
Romeo Thane Cook	88	*Chesaning*
Laura Johnston Cool	23	*Cordova, Ill.*
David Horton Cooley		*Lansing*
John Booth Cooley	39	*Ann Arbor*
John Kitteridge Coolidge		*Kenilworth, Ill.*
Nellie Bridget Cooney		*Durand*
John Joseph Corcoran	93	*Crystal Falls*
Richard James Cornell, Jr.		*Detroit*
Arthur Benjamin Cornwell		*Saginaw*
Harvey Francis Cornwell	30	*Ann Arbor*
Grace Anne Corrigan	26	*Saginaw*
Amaryllis Marie Cotey	56	*Cadillac*
Emerson Trowbridge Cotner		*Detroit*
Edward Hutchison Coulson	60	*Riverside, Cal.*
Claire Clark Coulter		*Charlevoix*
Harry Clayton Cowan		*Walla Walla, Wash.*

John Lewis Cox	30	*Mobile, Ala.*
Lyman Jerome Craig	61	*Detroit*
Ralph Cook Craig	63	*Detroit*
George Armstrong Cram	74	*Pontiac*
Verner Winslow Crane	62	*Tecumseh*
Warren Eugene Crane	30	*Ann Arbor*
Daune Wesley Crankshaw, *m*	63	*Mayville*
Linus Reed Cranmer		*Steubenville, O.*
Ellen Crawford	88	*Vinton, Ia.*
Irene Pearle Crawford	46	*Mount Clemens*
Leonard Harrison Cretcher, Jr.	30	*DeGraff, O.*
Charles Raymond Criswell		*Akron, N. Y.*
Janet Phoebe Crittenden	33	*Mount Clemens*
Elizabeth Crocker	8	*Springfield, Mass.*
Thomas Lee Cronin, Jr.		*Marshall*
Corydon Patten Cronk	108	*Newark, N. J.*
Louis Frederick Crosby		*Fort Wayne, Ind.*
Walter Francis Crosby		*Plainwell*
Mabel Louise Cross	89	*Ypsilanti*
Percy Vere Crowell	97	*Brattleboro, Vt.*
Ralph H. Culley	95	*Avon, N. Y.*
Jay Eben Currie	30	*Detroit*
Matilda Mary Currie		*Pontiac*
George James Curry		*Iron River*
Robert James Curry	30	*Dansville, N. Y.*
Arthur Eugene Curtis	59	*Flint*
George Lyman Curtis		*Flint*
George Morris Curtis	119	*Onondaga*
William Gillis Cushman, Jr.	58	*Fort Covington, N. Y.*
Walter Marvin Dailey	30	*Ann Arbor*
Mary Margaret Daly		*Jackson*
Fredda Marie Daniel		*Dearborn*
Vera Carlotta Daniel	62	*Dearborn*
Harold Bruce Daniels	S	*Saginaw*
Lewis Ernest Daniels	61	*Cambridge, Mass.*
Hazel Belle Daron	96	*Ann Arbor*
Esther Ellen Darrow		*Ann Arbor*
William Telfair Daugherty	8	*Washington, D. C.*
Pearl Wilma Davey	83	*Lake Linden*
Sigmund Walker David, *l*	96	*Chicago, Ill.*
Henry Arthur Davin		*Detroit*
Cora Ruth Davis		*Ann Arbor*
†Edward Nathaniel Davis, *e*	10	*Toledo, O.*
Florence Ada Davis	54	*Muskegon*
Horace Lee Davis		*Sterling, Colo.*
Jean Elizabeth Davis	69	*Flint*
Josephine Sears Davis	30	*Traverse City*
Julia Aurelia Davis	56	*Blissfield*
Katherine Inez Davis	84	*Bemus Point, N. Y.*

Leita Margarita Davis	61	*Independence, Kans.*
Lucy Davis	56	*Clio*
Mima Etta Alice Davis	57	*Grass Lake*
Grace Ellen Dawson		*Lexington, Ill.*
Rose Ortmann Dawson	2	*Pontiac*
Charles Alfred Dean, Jr.	24	*Detroit*
Jeanette Grace Dean	56	*Girard*
Carl Benjamin DeForest	46	*Ann Arbor*
Mercedes Maria de Goenaga		*Detroit*
Norma Louise de Guise	4	*River Rouge*
Paul Henry DeKruif	26	*Zeeland*
Ralph J. DeLand		*Flushing*
Helen Agnes DeLano	30	*Grand Rapids*
Charlotte Theiss Denfeld	71	*Saginaw*
George Hilton Denfeld		*Saginaw*
Donald Goodrich Denison		*Grand Rapids*
John Walter Denison	86	*Grand Rapids*
Alice English Densmore		*Ann Arbor*
May Belle Derragon	26	*Pontiac*
James Devlin		*Wellston, O.*
Eva Emelia DeVore	92	*Toledo, O.*
John James Devos, *l*	90	*Milwaukee, Wis.*
Barbara Aneta Dewey	40	*Ann Arbor*
Mattie Christine Dewey	91	*Shelby*
Frances Fern Dickie	64	*Ann Arbor*
Harriet Carleton Dickinson	67	*Jackson*
Selden Stratton Dickinson		*Jackson*
Ada Kathleen Dietz	76	*Detroit*
Geraldine Princess Dilla	75	*Ann Arbor*
Albert Romulus Dilley, *l*	92	*Parkerville, Kans.*
Beulah Elizabeth Dillingham		*Grand Rapids*
Clair William Ditchy	46	*Sandusky, O.*
Jerome Allen Ditchy	29	*Sandusky, O.*
†David Stanton Dobson, *e*		*Canastota, N. Y.*
Pearl Annetta Dolf	18	*Michigamme*
George Edwin Donnell		*Slatersville, R. I.*
Francis Zell Donovan	84	*Lawrence*
Mary Frances Donovan	26	*North Brookfield, Mass.*
Helen Irene D'Ooge	30	*Ypsilanti*
Chester Arthur Doty	90	*Lacota*
Evelyn Mary Dougherty	56	*Manistee*
Alice Ruth Douglas		*Westfield, N. Y.*
Harold Francis Douglas		*Fenton*
Walter Thomas Douglas		*Seattle, Wash.*
Caroline Miller Dow		*Detroit*
Thomas James Doyle		*West Duluth, Minn.*
George Adam Drach	21	*Ludington*
Robert Edward Driscoll	68	*Lead, S. Dak.*

Merle Cornelius Drumeler	58	*Panora, Ia.*
Jessie Emily Duckwall	30	*Aspinwall, Pa.*
William Caldwell Dudgeon, Jr.	64	*Saginaw*
Lee Alfred Dudley	60	*Battle Creek*
Louis Stephen Dudley		*Detroit*
George Motley Duff	55	*Oak Harbor, O.*
Mary Augusta Duff	95	*Oak Harbor, O.*
Alice Gertrude Duncan	68	*Thompsonville*
David Christie Duncan	50	*Churchville, N. Y.*
Kenneth Whitney Duncan	89	*Quincy, Ill.*
Richard Smith Duncan		*Saint Joseph, Mo.*
Donald D. Duncanson	23	*Cass City*
Jay Dunne		*Magnolia, Ill.*
Raymond Dwiggins		*Palisade, N. J.*
Justin King Dwinelle	69	*Tully, N. Y.*
Fred Hadley Dye	30	*Plankinton, S. Dak.*
Grace Baum Eames		*Saginaw*
Jessie Robertson Easson	91	*Spokane, Wash.*
Hugh B. Eastburn, Jr., *l*	90	*Doylestown, Pa.*
Carl Walter Eberbach	30	*Ann Arbor*
Walter Rhodes Edie	58	*Menominee*
Blanche Rolfe Edison	27	*Ann Arbor*
Ruby Virginia Edmister	68	*Detroit*
George Palmer Edmonds	48	*Wayne*
Lilian Kaminski Edmunds, A.B., *Earlham College*	90	*Ann Arbor*
Jeroue Josiah Edmundson	S	*Birmingham, Ala.*
Maude Edwards		*Calumet*
Prince Leroy Edwoods	21	*Bay City*
Arnold Henry Eggerth		*Spokane, Wash.*
George Marion Ehlers	12	*Baltimore, Md.*
Edel Veronica Ehrhorn	10	*Rock Island, Ill.*
Louis Eich		*Bellevue, Ky.*
Edgar Newton Eisenhower		*Abilene, Kans.*
Ernest Elgart	60	*Colchester, Conn.*
Susie May Ellett	96	*Lansing*
Homer Livingston Elliott	4	*Highmore, S. Dak.*
Wilbur Dean Elliott	89	*Ann Arbor*
George Saunders Ellison	107	*Dalzell, S. C.*
Frances Cora Ells	94	*Detroit*
Clara Harrison Stranahan Ely	58	*Rutherford, N. J.*
Emily Emeline Ely	97	*Rutherford, N. J.*
William Harvey Johnson Ely	22	*Rutherford, N. J.*
Clarence Enzenroth	94	*Mineral Point, Wis.*
Arthur Gottfrid Erickson	48	*Whitehall*
Mary Isabel Erwin	30	*Birmingham*
Carl Vanstone Essery, *l*	106	*Ann Arbor*
Robert Daniel Etnyre	52	*Oregon, Ill.*

Cecil Royal Evans	62	*Cheboygan*
DeForest William Evans	58	*Valparaiso, Ind.*
Emma Monica Evans	30	*Detroit*
Frank Clark Evans		*Redwood Falls, Minn.*
Joseph Henry Bruce Evans	34	*Washington, D. C.*
Leon Simpson Evans	10	*Cleveland, O.*
Oscar Montgomery Evans	S	*Ann Arbor*
Robert Van Evans	30	*Scranton, Pa.*
David Allan Everett	64	*Malone, N. Y.*
Barbara Mary Evert	30	*Houghton*
Sara Catharine Ewing		*Freeport, Ill.*
Peter R. Fagan	19	*Holly*
Grace Fairman	30	*Marysville*
Frederick Falkenhainer	18	*Milwaukee, Wis.*
Bernard Bowman Fallon	4	*Toledo, O.*
Charles Renwick Fanning		*Detroit*
Glen Vernon Farnham		*Valley City, N. Dak.*
Karl William Farr	22	*Greeley, Colo.*
Millison Cutler Farr	54	*Grand Haven*
Helen Lynette Farrand	31	*Port Huron*
Mary Teresa Farrell	66	*Milford*
John Joseph Feeley	20	*Whitesboro, N. Y.*
Robert Pattison Felgar	24	*Scottdale, Pa.*
Josephine Augusta Fellows		*Ann Arbor*
Carlisle Albert Ferguson, *l*	93	*Denver, Colo.*
Ned Clark Field		*Shepherd*
Ignace Stanley Filip	30	*Chicago, Ill.*
Laura Mary Finkbeiner	69	*Ann Arbor*
Edward Rudolph Finkenstaedt	53	*Bay City*
E. Rowland Finlay		*Battle Creek*
John Duncan Finlayson	58	*Sault Ste. Marie*
Mark Florus Finley, Jr.	36	*Washington, D. C.*
Juliette Irene Finn	55	*Detroit*
Bertha Louise Fischer	60	*Ann Arbor*
Carl William Fischer		*Denver, Colo.*
Eugene John Fischer, LL.B.	26	*Ann Arbor*
John Richard Fischer		*Cold Spring, N. Y.*
Mary Adelle Fish	103	*Bradford, N. Y.*
Roy Leigh Fish	10	*Warsaw, N. Y.*
Jacob Charles Fishman	28	*Toledo, O.*
Milton Juda Fist		*Pueblo, Colo.*
Rowland Wells Fixel	22	*Detroit*
Jeanette Lucile Flanagan	23	*Saint Johns*
Kimball Fletcher	97	*Los Angeles, Cal.*
Morris Jacob Flexner	88	*Louisville, Ky.*
Harold Renwick Flint		*Friendship, N. Y.*
Harold Raoul Flowers	30	*Ypsilanti*
Harry Zerno Folz	30	*Kalamazoo*

Marshall Warren Foote		*Erie, Pa.*
Clayton Force	60	*Grand Rapids*
Howard Willis Ford		*Springfield, Mass.*
Marshall Bean Ford		*Fruitport*
Maude Edna Ford	33	*Churchville, N. Y.*
Christine Elizabeth Foster	30	*Attica, Ind.*
Joseph Narcisse Fouchard	23	*Munising*
†Howard Stowell Fox, *c*	69	*Detroit*
Ina Fox	56	*Ann Arbor*
Vera Elaine Fox	62	*Detroit*
Don Irving Frace		*Charlotte*
Marguerite Sadie Frank	44	*Toledo, O.*
Charles Beman Franklin, *l*	91	*Denver, Colo.*
Harris Gilbert Franklin		*Buffalo, N. Y.*
Jerome Sittig Freud	32	*Detroit*
Gordon Howell Friend	54	*Dayton, O.*
Marion Nellie Frost	107	*Grand Rapids*
Raymond Hulitt Fryberger, *l*	90	*Noblesville, Ind.*
Raymond Tifft Fuller		*Lacona, N. Y.*
William Borland Fullerton	108	*Kansas City, Mo.*
Eleanor Campbell Furman	42	*Westfield, N. Y.*
Albert Carl Furstenberg		*Saginaw*
Carrie Elizabeth Fyffe		*Sterling, Colo.*
Charles Dudley Gable	90	*Cleveland, O.*
Frederick McMahon Gaige	8	*Ann Arbor*
Grady Gamble	8	*Clarington, O.*
Charles Lewis Gandy, *m*	91	*West Point, N. Y.*
Richard Alonzo Gantz	30	*Saline City, Ind.*
George Edwin Garbutt	28	*Saranac*
Jose Tegundo Garcia	30	*Eten, Peru, S. A.*
Earle Austin Gardner	S	*Lansing*
Leland Grisier Gardner		*Toledo, O.*
J. Floyd Garner	30	*Flint*
Mark S. Brewer Garner	16	*Flint*
Irvan Alexis Garrill		*Bowling Green, O.*
Harry Blauvelt Garrett	91	*Decatur*
Charles Percy Garwood	32	*Penn*
Omar Marcus Gass	56	*Imlay City*
†Robert Gauss, *l*		*Chicago, Ill.*
Louise Lydia Gaylord	44	*Ann Arbor*
Thomas Ambrose Gaynor	93	*Montague*
William Arthur Geer	78	*Detroit*
Kriemhild Georg	43	*Ann Arbor*
Thusnelda Georg	94	*Ann Arbor*
Erna Katherine George		*Detroit*
Grace Helena Gerberich	30	*Lebanon, Pa.*
Pearl Selinna Gerberich	30	*Lebanon, Pa.*
Helen Elisabeth Gibson	38	*Ann Arbor*

Howard Andrew Gibson	23	*Oxford*
Arthur Earl Giddings	22	*Hart*
Charles George Gies		*Reese*
Thomas Edward Gilbert	26	*Dillon, Mont.*
Benjamin Franklin Gilkeson	4	*Detroit*
Robert Morris Gillett	12	*Bay City*
Gladys Elizabeth Gillette	62	*Pellston*
Laura Leona Gillette	60	*Ann Arbor*
Newton Gilliland		*Forsyth, Mont.*
Avery Jacob Ginsburg	65	*Detroit*
William Mitchell Glasgow	92	*Jonesville*
Austin Otis Glass	30	*Sennett, N. Y.*
Edwin Clifford Glidden		*Detroit*
George Henry Glukoff		*Pittsburg, Pa.*
Harvey Warren Goddard	28	*Ann Arbor*
Ernest Eugene Godfrey	91	*Ann Arbor*
Carl Goehring		*Grand Island, Neb.*
Herbert Adolph Goetz	62	*Grand Rapids*
John William Golbach	4	*Gross Point, Ill.*
Minnie Goldberg	61	*Chicago, Ill.*
Mabel Elina Goldthwaite	86	*Hubbardston*
Charles Ellis Good, *l*	103	*Nahma*
Earl Frederick Good	32	*Nahma*
Ralph Hinsdale Goodale	90	*Angola, Ind.*
Fred Edwin Gooding	95	*Lima, O.*
Willis Bligh Goodnow	30	*Detroit*
George Ellsworth Goodrich	S	*Dexter*
Harriet Emma Goodrich	50	*Detroit*
David Spencer Goodyear	24	*Hastings*
Benjamin Harrison Gordon		*Whiting, Ind.*
John Alexander Gordon, *l*	91	*Battle Creek*
William Henry Gordon		*Findlay, O.*
Galbraith Peter Gorman		*Chelsea*
Clark Webster Gould	84	*Mount Vernon, N. Y.*
Frederick Eugene Gould	10	*Owosso*
Harold Clement Gould	15	*Washington, D. C.*
Harold Peck Gould	88	*Riverside, Ill.*
Jay Kingsley Gould		*Battle Creek*
Margaret Elizabeth Gould	49	*Sheridan, N. Y.*
Roy Searls Gradle	16	*Chicago, Ill.*
Katharine Price Graham	51	*Newton, Pa.*
John Benjamin Grant		*Sand Lake*
Robert Granville	95	*Saginaw*
Muriel Jennings Gray	100	*Toronto, Ont.*
Lucien Helm Greathouse	44	*Washington, D. C.*
Donald Washington Green	43	*Saginaw*
George Rex Green	57	*Irvona, Pa.*
Howard Albro Green	93	*Orchard Lake*

Daisy Greenacre		*Chicago, Ill.*
Mary Greenacre	89	*Chicago, Ill.*
Agnes Elizabeth Greene		*Chicago, Ill.*
Irving Waterloo Greene, *m*	94	*Richmond*
Leslie Everts Greene	18	*Escanaba*
Marjorie Carrie Greene	97	*Ann Arbor*
Gladys Jennie Greenfelder	27	*Chesaning*
Paul George Greer, *l*	94	*Kansas City, Mo.*
Virgil David Greer, *m*	70	*Mount Vernon, Ill.*
Nellie A. Gregg	89	*Durand*
Elmer Presley Grierson	30	*Manchester, O.*
Edith Florence Griffin	86	*Battle Creek*
Burton George Grim	56	*Ann Arbor*
Morley Griswold		*Elko, Nev.*
Arthur Otto Groff	86	*Grand Rapids*
Wirt Clarence Groom, *m*	97	*Auburn, N. Y.*
Sylvan Salmon Grosner	28	*Washington, D. C.*
Hazel Gross	48	*Rockford*
Herman John August Grossman	68	*Chicago, Ill.*
Maude Guilford		*Lansing*
Mildred Beulah Guilford		*Friendship, N. Y.*
John Guinther	82	*Niagara Falls, N. Y.*
Merle W. Gump		*Milan*
Fred Melvin Gunn	56	*Lisbon*
Virgil Bray Guthrie	106	*Ann Arbor*
John Gutknecht	70	*Chicago, Ill.*
Elsa Hulda Haass	89	*Detroit*
Carroll Barse Haff		*Kansas City, Mo.*
Dana Arthur Hagedorn, *m*	59	*Lansing*
Elmer Washington Hagmaier	90	*Pittsburg, Pa.*
Elenore Minerva Hague	88	*Chicago, Ill.*
Clarence Scofield Hahn		*Scottsfield, N. Y.*
Raymond Clymer Haimbaugh		*Denver, Colo.*
James Russell Lowell Hakes	32	*Laurens, Ia.*
Charles Hubbard Hall	61	*Chicago, Ill.*
Clarence Freeman Hall	90	*Clayton, N. Y.*
Lora Wilhelmine Hall	62	*Owosso*
Julia Ethel Halleck	28	*Ann Arbor*
Frida Irma Haller	70	*Ann Arbor*
Louis Patterson Haller	61	*Omaha, Neb.*
Leon Hoyt Hamburger		*Detroit*
Francis Garfield Hamilton	61	*Ann Arbor*
Helen Isabel Hamilton		*Bellevue*
Richard Alvord Hamilton	26	*Hamilton, Wyo.*
Anthony Andrew Adam Hammersmith	101	*Massillon, O.*
John Valentine Hammersmith		*Massillon, O.*
Florence Belle Hammond	30	*Ann Arbor*
Gladys Clayton Hammond		*Monroe*
Harry William Hammond	49	*Ludington*

Edmond Matthew Hanavan	18	*Detroit*
Annie Marcella Hankey	95	*Houghton*
Eva Elizabeth Hanks	2	*Hume, N. Y.*
John Perry Hanna		*Geneseo, Ill.*
Rebecca Mary Hannum	48	*Kenneth Square, Pa.*
Andrew Elmor Hansen	52	*Norway*
Victor Roscoe Hanson	40	*Sault Ste. Marie*
Firn Roy Harding		*New Hudson*
Isaac Johnson Harkleroad	21	*Elyria, O.*
Byron Berry Harlan	44	*Dayton, O.*
Lucie Harmon	98	*Toledo, O.*
Russell Harness	18	*Kokomo, Ind.*
Claude Hezekiah Harper	62	*Ann Arbor*
Helen Rowan Harper	60	*Fort Wayne, Ind.*
Eleanor Nettie Harrington	92	*Ontonagon*
Hazel Harrington	26	*Detroit*
Elizabeth Helen Harris	64	*Detroit*
Jennie May Harris	46	*Tecumseh*
Pauline Harris	44	*Detroit*
William Howard Harsha	30	*Portsmouth, O.*
Pearl Marguerite Hart		*Manistee*
Ray Cyrus Harter		*Watertown, N. Y.*
Howard Russell Hartman, *m*	62	*Toledo, O.*
Grace Edna Haughton	30	*Toledo, O.*
Jeannette Winifred Hawkes	93	*Ann Arbor*
Frederick Leslie Hay, Jr.	4	*Defiance, O.*
John Harold Hay, *m*	60	*Erie, Pa.*
Egbert McGinnis Hayes	101	*Soochow, China*
Harry Gordon Hayes	82	*Prairie City, Ia.*
Elizabeth Irene Hayner	97	*Detroit*
Merritt Maraue Haynes		*Cadillac*
Griffith Hays	52	*Circleville, O.*
Lorin Heacock		*Beloit, O.*
Rachel Ann Heacock		*Beloit, O.*
Roy Sanford Head	56	*Ann Arbor*
Marie Frances Heald	90	*Hartford*
Charles Walter Healey	2	*Houghton*
Stephen John Hebeler	86	*Swarmville, N. Y.*
Harold Spring Heege		*Independence, Ia.*
Oliver Herman Heidt	4	*Detroit*
Wanda Charlotte Heim	53	*Saginaw*
Robert Dawson Heitsch	103	*Pontiac*
Walter Heller		*Chicago, Ill.*
John Hemenway	61	*DeKalb Junction, N. Y.*
Samuel Dana Henderson	28	*Halstead, Minn.*
Jack Morton Hendrick	60	*Trinidad, Colo.*
Walter Edmund Henes	80	*Menominee*
Mae Agnes Hennessey	57	*Saint Clair*

John Emory Henton		*Mattoon, Ill.*
Bertha Carman Herbst	30	*Ann Arbor*
John Carman Herbst	11	*Ann Arbor*
Alvah Herr		*Pekin, Ill.*
Hattie Blanche Hess		*Fredonia, Kans.*
Martha Belle Hetzel		*Avoca, Ia.*
Beatrice Estelle Heughens		*Lake Linden*
Richard W. Hickman, Jr.	47	*Washington, D. C.*
Caroline Denison Higgins		*Arlington, Mass.*
Mary Lucille Higgins	94	*Ann Arbor*
Hugh Rannells Hildebrant	34	*Washington Court House, O.*
Florence Jane Hill	64	*Detroit*
Marium Anna Hill		*Detroit*
Norman Hingston Hill	65	*Haileybury, Ont.*
Walter Clarence Hill	4	*Saginaw*
Hellen Elisabeth Hilliker	8	*Ann Arbor*
Daisy Maud Hillman		*Ann Arbor*
Levant Maurice Himelein	92	*Findley Lake, N. Y.*
Dewey Asa Hinckley	62	*Kalamazoo*
Helen Rich Hine	45	*Detroit*
Leo Charles Hinslea		*Olmsted Falls, O.*
Leroy Edmond Hinton		*Terraville, S. Dak.*
William Burton Hinton		*Muskogee, Okla.*
Charles Harold Hippler	30	*Geneseo, Ill.*
Lynne Arthur Hoag	14	*Ann Arbor*
Ruth Elizabeth Hobart	36	*Friendship, N. Y.*
May Hodge	42	*Ann Arbor*
Gladys Jane Hodgson		*Cripple Creek, Colo.*
Peter Hoekstra	93	*Grand Rapids*
Olivia Clare Hoerman		*Detroit*
Laura Harriot Hoff	22	*Carey, O.*
Roland Paul Hofmann	4	*Fort Wayne, Ind.*
Paul Campbell Hohl		*Lima, O.*
Howard Morton Holcombe		*Chateaugay, N. Y.*
Kenneth Henre Holden		*Three Oaks*
Donald Marion Holland	56	*Ovid*
William Tinker Hollands		*Ann Arbor*
Mary Elizabeth Hollington		*West Unity, O.*
Louise Moses Hollon	64	*Marshall*
Warren Samuel Holmes	88	*Fowlerville*
Alicent Holt	93	*Grand Rapids*
Clarence Walfrid Holt		*Ironwood*
Emily Adams Holt	58	*Grand Rapids*
Mildred Emily Holznagle		*Highland Park*
Genevieve Belle Hopkins	91	*Ann Arbor*
Harold Dana Hopkins		*Durand*
Walter Garrison Hopkins	30	*Ann Arbor*
George Hall Hopper	15	*Mays, Ind.*

Raymond Edwin Hopson	90	*Dolgeville, N. Y.*
Mary Anna Horrigan	56	*Ypsilanti*
Joseph Horner, Jr.	64	*Grand Rapids*
Clara Elizabeth Horning	30	*Saginaw*
Henry Stoneburner Hosmer		*Jackson*
Hiram Gilbert Hotchkiss, 4th		*Lyons, N. Y.*
Merle Matilda Housel	108	*Jewell, Kans.*
Jessie Louise Houseman	91	*Muskegon*
Martin Lester Houseman	60	*Muskegon*
Arnold William Houser	30	*Detroit*
Morris Elmer Houser	52	*Detroit*
William Lexington Hovey	26	*Fenton*
Emma Jane Howarth	91	*Marshalltown, Ia.*
William Hall Howe	29	*Paw Paw*
Max Don Howell	30	*Auburn, N. Y.*
Karl Elmo Howser		*Marion, O.*
Helen Lucile Hoy	53	*Cassopolis*
Selma Hoyseth		*Ishpeming*
Walter Asahel Hoyt, *m*	99	*Ypsilanti*
Charles Arthur Huber	13	*Toledo, O.*
Herbert Henry Huebel		*Menominee*
Clair Brinton Hughes	30	*Toledo, O.*
Leo Cecil Hughes	73	*Augusta*
Grace Darling Hull		*Detroit*
Isabella McFarlane Hull	34	*Detroit*
Earl Clifton Humphrey	30	*Cleveland, O.*
Gertrude Nash Hunawill	61	*Ann Arbor*
Henry Milton Hundertmark	58	*Geneva, O.*
Neva Manley Hungerford	87	*South Bend, Ind.*
Frank Park Hunter		*Williamsport, Ind.*
Jessie Anna Hunter	73	*Pocatello, Idaho*
Harry Gilbert Huntington, *m*	104	*Howell*
Wilma Emma Hurd	60	*Edgerton, Wis.*
Edith Belle Hurley	102	*Ann Arbor*
Harlow Hurley	4	*Topeka, Kans.*
Marion Elizabeth Hurley	65	*Detroit*
Ruth Josephine Hurley	31	*Detroit*
Vera Alma Hurst		*Saginaw*
Russell Claudius Hussey	65	*Mendon, O.*
Adelaide Huston	S	*Detroit*
Irma Hutzel		*Ann Arbor*
Sophie Elizabeth Hutzel	44	*Muncie, Ind.*
Georgia Gertrude Hyatt	4	*Charlotte*
Mamie Carrie Hyde	68	*Grand Rapids*
Ella May Hymans	58	*Bay City*
Ray Keeslar Immel	110	*Ann Arbor*
Bessie Randall Ince	60	*Reed City*
Henrietta Josephine Inglis	106	*Boulder, Colo.*
Adelaide Victoria Inman	86	*Highland Park, Ill.*

†Glenn Allen Irvin, *e*	14	*Sinclairville, N. Y.*
Heyward Irving		*Malone, N. Y.*
John Mansfield Irving	91	*Toledo, O.*
Russell Little Irving	51	*Alpena*
Herbert Edwin Ives	16	*Detroit*
Mary Allen Jackman		*Ann Arbor*
Bess Hazelton Jackson	96	*New York, N. Y.*
John Edward Jacoby	90	*York, Pa.*
Della Hudson Jacques	13	*Saginaw*
Alvin Austin Jagger		*East Palmyra, N. Y.*
Woodward Shelton James		*Kansas City, Mo.*
James Knox Jamison	8	*Mount Pleasant*
Arthur Freeman Janes	10	*Tacoma, Wash.*
Helen Jaquette	85	*Woodstown, N. J.*
Bertha Claire Jarvis	26	*Port Huron*
Mary Blanchard Jefferds	S	*Charleston, W. Va.*
Lulu May Jefferson	40	*Williamston*
William Lindsey Jenkins		*Manila, P. I.*
William Sanborn Jenks	86	*Port Huron*
Conrad Montague Jennings	53	*Milwaukee, Wis.*
John Henry Jensen	51	*Buffalo, N. Y.*
Osee Helena Jewell		*Dowagiac*
Robert Lee Jickling	53	*Kalamazoo*
David Cecil Johnson	32	*Ann Arbor*
Hilda Ray Johnson	90	*Windsor, Ont.*
Laurence Crane Johnson	90	*Ann Arbor*
Nason Collins Johnson	50	*Alpena*
Alta Elizabeth Johnston	58	*Lansing*
James Scott Johnston	75	*California, Pa.*
John Wyndham Johnston		*Saint Louis, Mo.*
William McKeehan Johnston	6	*Valparaiso, Ind.*
Berenice Laura Jones	90	*Madrid, N. Y.*
Dana Erwin Jones	78	*East Randolph, N. Y.*
Esyllt Jones		*Ann Arbor*
Grace Etelka Jones	113	*Detroit*
Harry Burnell Jones, *l*	96	*North Yakima, Wash.*
Helen Kerpka Jones	97	*Delevan, N. Y.*
Lloyd Gibby Jones	92	*Delevan, N. Y.*
McClellan Gibby Jones	67	*Delevan, N. Y.*
Winnie Mae Jones	87	*Ann Arbor*
Victor Rudolph Jose, Jr., *l*	97	*Indianapolis, Ind.*
Donald A. Kahn	51	*South Bend, Ind.*
Ernest Carlton Kanzler	18	*Saginaw*
Frank Albert Kapp	99	*Toledo, O.*
Jacob Karash		*Chicago Heights, Ill.*
Philip Marshall Keen	56	*Galien*
George Lawrence Keenan	83	*Port Huron*
Merlin Keller	36	*Chase*
Charles Glen Kelley	91	*Ann Arbor*

Edward James Kelley		*Mount Morris, N. Y.*
Kenneth Kellogg	54	*Los Angeles, Cal.*
Harry Conner Kelly	104	*Mount Clemens*
James Downing Kelly		*Chicago, Ill.*
Edward Gearing Kemp	30	*Saint Clair*
Agnes Kennedy	21	*Ishpeming*
Charles Stuart Kennedy, *m*	61	*Ann Arbor*
Frederick Johnston Kennedy		*Ann Arbor*
Herbert Francis Kenny		*Duluth, Minn.*
William George Kerr		*Cleveland, O.*
Clara Ellen Kervin	27	*Bradford, Pa.*
Harold Augustus Kesler	24	*Hillsdale*
Lillian Ellen Kilby		*Marshall*
Agnes Clay Kime	91	*Atanta, Ga.*
Charles Davidson Kime	28	*Atlanta, Ga.*
Attix Haywood Kinch		*Port Huron*
Catherine Doris King	56	*Marquette*
Gordon Willis Kingsbury	63	*Ann Arbor*
Lynn William Kingsbury	93	*Friendship, N. Y.*
George Bowman Kingston	30	*Croswell*
Helen Margaret Kinney	10	*Atkins*
Edwin Kirschbraun	30	*Omaha, Neb.*
Donald Selden Kiskadden	25	*Detroit*
Maurice Kivel	106	*Dover, N. H.*
William Henry Klare		*Ann Arbor*
Abraham Albert Klein	59	*Syracuse, N. Y.*
Carl Hubbard Kleinstück		*Kalamazoo*
Julia Isabel Knapp		*Howell*
Clifford Reynolds Knight	52	*Parsons, Kans.*
Guy Webster Knight		*Bay City*
Calvin Elroy Kinsley		*Galion, O.*
Herbert Gustave Knoch		*Detroit*
Martin Edwin Knoll	60	*Decatur*
Erwin Ferdinand Koch	60	*Fort Wayne, Ind.*
Arthur Koehler	57	*Mishicot, Wis.*
Charles John Koehler	34	*Saginaw*
Marguerite Clara Kolb	34	*Detroit*
Anna Janes Kolmesh	66	*Ann Arbor*
Margaret Janes Kolmesh	98	*Ann Arbor*
Herschel Scott Konold		*Oak Park, Ill.*
Charles John Kraebel	32	*Buffalo, N. Y.*
Rollan William Kraft		*Detroit*
Stanley Arthur Kreis	11	*Cincinnati, O.*
Edwin William Kronbach	99	*Monroe*
Paul Alexander Krueger	26	*Michigan City, Ind.*
Ching Lin Kuan	24	*Shanghai, China*
Emmaline Joyce Kuhn	26	*Ann Arbor*
Kenneth Kuhn		*Gregory*
Spencer Gazlay Kuhn	44	*Cincinnati, O.*

Paul Max Anton Kuhr		*Chinook, Mont.*
William Henry Kuhr	63	*Chinook, Mont.*
Robert Edward Kusterer	62	*Grand Rapids*
Charlotte Antoinette Labadie	30	*Detroit*
Franceine Needham Lacey	59	*Oskaloosa, Ia.*
Sonia Ladoff	94	*Cleveland, O.*
Evart Bruce Laing	62	*Boyne City*
Harold Julian LaLonde	30	*Sault Ste. Marie*
Hubert Alfred Lamley	22	*Blissfield*
Paul Thomas Landis	56	*Huntingdon, Pa.*
Clayton Roger Lane		*Corning, N. Y.*
Eben Elwood Lane		*Fort Wayne, Ind.*
Robert Porter Lane	30	*Fort Wayne, Ind.*
Winthrop David Lane, *l*	94	*Fort Wayne, Ind.*
Lorenzo Brown Lapsley		*Chicago, Ill.*
Carl Nels Larsen		*Alpena*
John De LaRue	95	*Northville*
George Starr Lasher	75	*Plainwell*
Walter Carl Laubengayer	11	*Ann Arbor*
Harry Launt		*Sidney, N. Y.*
Herbert Moses Lautmann	12	*Michigan City, Ind.*
John Funderburg Lauver		*Detroit*
Mary Elmire LaVigne	58	*Champion*
Victor Hugo Lawn	16	*New York, N. Y.*
Francis James Lawrence	74	*Cheboygan*
Mabel Carrie Lawrence	60	*Stockbridge*
James Fred Lawton	62	*Detroit*
Norine Veronica Leary		*Lake Linden*
Claude Edward Leavers		*Akron, O.*
Clara Denton Lee	18	*Pueblo, Colo.*
Rosalia Annis Lee	84	*Pueblo, Colo.*
Jessie Ethel Leeman		*Williamston*
Elmer Raymond Lehndorff	28	*Rogers*
Leta Leigh	99	*Milwaukee, Wis.*
Vernon Walker LeMaster	30	*Portland, Ind.*
Florence Rose Lembeck	102	*Cleveland, O.*
Bessie Brenneman Leonard	101	*Uniontown, Pa.*
Clarence John Leonard		*Delevan, N. Y.*
Joseph Stanley Leszczynski		*Harbor Beach*
Otilia Rose Leuchtweis		*Beal City*
Florence Eleanor LeValley	89	*Saginaw*
Olive Frances Leverett		*Denmark, Ia.*
Samuel Mordecai Levin	3	*Detroit*
Carlton Arnold Lewis	30	*Bay City*
Charles Elbert Lewis	43	*Ann Arbor*
Eva Jayne Lewis	87	*Howell*
Gladys Sarah Lewis	78	*Ithaca*
Harold Taber Lewis	26	*Utica, N. Y.*

John Barden Lewis	40	*Greenville*
Ruth Lewis	21	*Harlan, Ia.*
Ruth L'Hommedieu	30	*Detroit*
Milton Clarkson Lightner	88	*Detroit*
Harold Irving Lillie, *m*	96	*Grand Haven*
Leo Cecil Lillie	26	*Grand Haven*
Walter Ivan Lillie		*Grand Haven*
Franklin Theodore Lillotte, Jr.	23	*Pinconning*
Anna Eugenia Lindberg	91	*Grand Rapids*
Herbert Frederick Lindsay	62	*Amsterdam, N. Y.*
William LeRoy Lindsay	S	*Glendive, Mont.*
Charlotta Helen Lindstrom	56	*Pittsburg, Pa.*
Addison Milligan Lippincott	30	*Philadelphia, Pa.*
James Rubeo Lisa	40	*Calumet*
Leslie William Lisle		*Saint Charles*
Hazel Grace Littlefield	30	*Farwell*
Hazel Ione Livingston	88	*Mount Pleasant*
John White Livingston	30	*Alto*
Charlotte Christine Lloyd	60	*Olyphant, Pa.*
Arnold G. Lockerby		*Grand Rapids*
Grace May Lockton	30	*Ann Arbor*
Leo Frederic Long		*Tekonsha*
Arthur Lovell Loring	26	*Dallas Centre, Ia.*
Arthur Herbert Loucks	93	*Grand Rapids*
William Watson Lovett, Jr.		*Ann Arbor*
Isaac Lowenburg		*Natchez, Miss.*
Marguerite Luce	94	*Caro*
Arthur Charles Luchtman	43	*Utica*
Dean Loree Lucking, *l*	93	*Detroit*
Marian May Ludington	106	*Detroit*
Irma Karola Luellemann	8	*Saginaw*
Norman Luneke	56	*Caledonia*
John Burns Lyman	30	*Alexandria Bay, N. Y.*
Sumner Hicks Lyman		*Corunna*
John David Lynch, *l*	97	*North Detroit*
Margaret Elizabeth Lynch		*Bangor*
Marigold Isabel Lynch	26	*Grand Rapids*
Mary Ellen Lynch	103	*Grand Rapids*
Mary Elizabeth Lynn		*Wabash, Ind.*
Katharine Luella Macaulay	4	*Calumet*
†Gordon Alan MacBain, *l*		*McBain*
Anne May McCamly	4	*Battle Creek*
Louise Dale McCamly	58	*Battle Creek*
Edward F. McCarthy	67	*McLean, N. Y.*
Henry Eugene McClenahan		*Sharon, Pa.*
Thyrza McClure	65	*Minneapolis, Minn.*
Dorothy Barnes McCorkle	22	*Detroit*
Ralph Maitland McCormick	4	*Bay City*
William Samuel McCormick	26	*Detroit*

William Nelson McCoy	112	*Roseville, O.*
George Ezra McCracken, *l*	90	*Ann Arbor*
Lulu Franck McCreery	8	*Ann Arbor*
Ethel Agnes McCrickett	30	*Detroit*
George Clayton McCrillus		*Oakfield, N. Y.*
Leo Franklin McCue		*Carrington, N. Dak.*
Harry Osborn McCully		*Erie, Pa.*
Adelaide MacDonald	62	*Negaunee*
Agnes Rose MacDonald	72	*Negaunee*
Clay Christopher Macdonald	52	*Detroit*
Graeme Moore MacDonald	10	*Louisville, Ky.*
Marjorie Elizabeth Macdonald	30	*Saint Cloud, Minn.*
Clement Stephen McElwain	26	*Lansing*
John Howard McEwan, *m*	67	*Sault Ste. Marie*
Irene McFadden		*Detroit*
Florence Alberta MacFarlane	31	*Detroit*
Grace Fanny McGeoch		*Bay City*
Reginald William McGeoch, *m*	61	*Bay City*
O'Kane Jerome McGillis		*Escanaba*
Marguerite Helena McGivney	91	*Howell*
William Burt MacGregor		*Flint*
Florence Helen McGuire	39	*Birmingham*
Ellen Louise McHenry	30	*Detroit*
Alfred Griffin McIntosh	59	*Mobile, Ala.*
Catherine Hostetter MacKay	12	*Mount Carroll, Ill.*
Alonzo Timothy McKean	92	*Austin, Tex.*
Florence Elizabeth MacKenzie	89	*Detroit*
Frank Joseph Mackey		*Frankfort, Kans.*
Mary McKinney	89	*Bay City*
Walter Hastings McKinney	30	*Sault Ste. Marie*
Leslie Thompson McKinnon		*Ashtabula, O.*
Robert William McKisson	30	*Toledo, O.*
Cornelia Hempstead McKnight	79	*Dubuque, Ia.*
Harold Orlando McLain, *l*	96	*Chicago, Ill.*
James Angell McLaughlin	31	*Chicago, Ill.*
Wilson McLaughlin	42	*Muskegon*
Bessie Lucile McLouth		*Ann Arbor*
Claudia McMahan	92	*Crown Point, Ind.*
Maude Anne McMichael	30	*Traverse City*
Neil McMillan	2	*Detroit*
Duncan James McNabb	S	*Grand Rapids*
Mary Ann McNally	30	*Mackinac Island*
Mae M. McNamara	68	*Saint Ignace*
Allen James McNeal		*Topeka, Kans.*
Jean Riddel McPhee	89	*Flint*
John Hume McPhee	87	*Flint*
Marjorie Bixby Macpherson	10	*Akron, N. Y.*
Hugh Brewster McVicker	84	*Lisbon, O.*

Arthur Paul Madden		*Menominee*
Helen Magee		*Easton, Pa.*
Florence Jennie Mager	84	*Adams Basin, N. Y.*
William L'Estrange Mahon		*Berkeley, Cal.*
Georgia Henrietta Maier	6	*Saginaw*
William Henne Maier		*Troy, O.*
Mary Jane Malcolmson	26	*Detroit*
Mildred Marguerite Maloney	88	*Battle Creek*
Alson Job Manby	61	*Battle Creek*
Augustus Lester Mancourt	18	*Detroit*
Harry Stern Mann	90	*Canton, O.*
Anna Louise Manning	88	*Sault Ste. Marie*
Norman Priest Manny	8	*Michigan City, Ind.*
Harold Elmer Mantz	92	*Lodi, O.*
Manton Monroe Marble	95	*Chicago, Ill.*
Grace Benson Marburger	89	*Salem, O.*
Harry Boyd Maris	115	*Stockton, Kans.*
Rachel Marietta Markham	16	*Ann Arbor*
Elizabeth Frederika Marlatt	71	*Saginaw*
Elsa Marie Maroney	8	*Chelsea*
Phil Lewis Marsh	54	*Jackson*
Laverne Penoyer Marshall		*Flint*
Mabel E. Marshall	82	*Gaylord*
Malcolm Yeaman Marshall, *m*	94	*Henderson, N. Y.*
Ross Lee Marshall	30	*Shelby*
Blanche Elizabeth Martin	60	*Ann Arbor*
Nita Beatrice Martin	92	*Detroit*
Rose Frances Norris Martin	79	*Detroit*
Thomas Foster Martin	23	*LaPorte, Ind.*
Florence Marx	60	*Detroit*
Forrest Day Matheson	69	*Elkhorn, Wis.*
George Edward Matthews	22	*Library, Pa.*
Karl Bowdish Matthews	30	*Dubuque, Ia.*
William Fredrick Maurer	26	*Fostoria, O.*
Arnold Higham May		*Buffalo, N. Y.*
Gerald Jaffa May		*Detroit*
Ellis Maynard	92	*Grand Rapids*
Myrick Day Mead	24	*Escanaba*
Theodore Snow Mead	4	*Sault Ste. Marie*
Robert Beath Meade		*Escanaba*
Ann Louise Meadows		*Chicago, Ill.*
Albert Edward Meder, *l*	96	*Bay City*
Alexina Meier	76	*Ann Arbor*
Edwin Emanuel Meier		*Detroit*
Donald Franklin Melhorn	60	*Kenton, O.*
William Ray Melton		*Dillon, Mont.*
Edwin Joseph Mercer		*Detroit*
Max Merrell	22	*Fairbury, Neb.*
Leon B. Merritt	S	*Portland, Ore.*

Richard Smith Mesick	95	*Petoskey*
Elsie Mess	59	*Benton Harbor*
John McRoberts Messerly	30	*Sedalia, Mo.*
Woodbridge Metcalf	66	*Grosse Pointe Farms*
Carl Stuart Metzger		*Ionia*
Lionel Nordyke Metzger		*Ann Arbor*
Carl Lewis William Meyer	90	*Hamburg, Germany*
Edward Wesley Meyers	S	*Decatur, Ind.*
John Douglas Mick	26	*Menlo, Ia.*
Howard Augustus Mikesill	64	*Charlotte*
Brice Alfred Miller	48	*Ann Arbor*
Frank Stephenson Miller		*Niagara Falls, N. Y.*
Fred Harris Miller	88	*Mound Bayou, Miss.*
Harold Emanuel Miller	30	*Milwaukee, Wis.*
Herbert Richard Miller		*Fort Wayne, Ind.*
John Ferdinand Miller	S	*Pittsburg, Pa.*
Mary Lincoln Miller	8	*Uniontown, Pa.*
Norman James Miller	9	*Bay City*
Peter Anthony Miller		*Marshfield, Wis.*
Winifred Lucine Miller	4	*Sturgis*
Claude Knight Milligan		*Ottumwa, Ia.*
Harry Darwin Mills		*Ann Arbor*
Elmer Dayton Mitchell	30	*Negaunee*
†Horace Wilson Mitchell, *e*	6	*Kansas City, Mo.*
Lydia Johanna Mitchell	8	*Negaunee*
Takanga Mitsui	2	*Tokyo, Japan*
Arthur Bernard Moehlman	30	*Detroit*
Julius Herbert Moeller	82	*Hillsdale*
Fred Thomas Mohn	6	*Detroit*
Karl John Mohr	12	*Pekin, Ill.*
Sophia Marie Moiles	34	*Saginaw*
Francis Carr Montross		*Sloan, Ia.*
Maxwell John Moon		*Ann Arbor*
Arthur Kenneth Moore		*Flint*
Earl Vincent Moore	30	*Lansing*
Ellen Whitley Moore	38	*Coldwater*
Gertrude Sarah Moore		*Coldwater*
Maude Katherine Moore		*Marinette, Wis.*
Dorothy Morgan Moran		*Ann Arbor*
Robert Treadwell Moreland	76	*Adrian*
Daniel Carney Morgenthaler	48	*Cincinnati, O.*
Frank Whitcomb Morrill		*Leicester, Mass.*
†George Crawford Morrill, *e*	38	*Big Rapids*
Russell DeWitt Morrill	34	*Big Rapids*
Christian Purtscher Morris	63	*Lima, O.*
Edna Belle Morris	62	*Saint Johns*
Samuel Henry Morris	61	*Prescott, Ariz.*
Arthur MacRae Morrison	52	*Wayne*

Joel Royden Morrison	S	*Iron River*
Josephine Morrison	31	*Iron River*
Rodetta Ross Morrison	91	*Hancock*
James Robert Morrow		*Arch Spring, Pa.*
Frieda Adaline Morse	60	*Ann Arbor*
Mae Eunice Morse	88	*Flint*
Milla Pemberton Morton	51	*Ann Arbor*
Moses Emmett Morton	16	*Lowndesboro, Ala.*
Frank James Mosher	73	*Beloit, Wis.*
Mae Lucy Mosher		*Battle Creek*
Helen Augusta Moses	48	*Binghamton, N. Y.*
Rolland Vaughn Mothersill	64	*Holly*
John Donald Mourer		*Newcastle, Ind.*
Luray Jamison Mouser		*Marion, O.*
Edgar Ansel Mowrer		*Chicago, Ill.*
George Florian Muehlig, *m*	91	*Ann Arbor*
Reinhold Henry Muggelberg	8	*Mount Clemens*
James Muir	26	*Dayton, O.*
Mary Octavia Mulheron	63	*Highland Park*
Henry William Muller	S	*Fort Wayne, Ind.*
Frank Martin Mulroney		*Fort Dodge, Ia.*
Emil Jacob Munch		*Monroe*
George Abbott Mundy	27	*Detroit*
Helena Beatrice Munn	99	*Ann Arbor*
James Calvin Munn	46	*LaSalle*
Edward Norfolk Munns	48	*Peoria, Ill.*
Frederick TenEycke Munson	30	*Belmont, N. Y.*
Allen Wiley Murdock	31	*Schenectady, N. Y.*
Florence Bernardine Murphy	52	*Marshall*
Frank William Murphy	20	*Harbor Beach*
Grace Irene Murphy		*Michigan City, Ind.*
Hazel Anna Murphy	36	*Adrian*
Louis Healy Murphy		*Kalamazoo*
Arthur Venton Murtha	48	*Shepherd*
Maurice Clark Myers	64	*Ann Arbor*
Peter James Myers	52	*Iron River*
Charles Herman Mylander	62	*Oak Harbor, O.*
Nelson Allen Myll		*Detroit*
Harry Glenn Myser	62	*Canton, O.*
Flora Louise Nadeau	56	*Nadeau*
Madeline Nadeau	40	*Seattle, Wash.*
George Irving Naylor, *h*	90	*Chili Station, N. Y.*
Robert Floyd Neeland		*Northville*
Carl Barney Nehls	77	*Detroit*
Libbie Neimack		*Calumet*
Jesse Charles Nellis	63	*Ann Arbor*
Grace Adelaide Nelson	90	*Atlanta, Ga.*
Harriet Ann Nelson	85	*Mount Pleasant*
Frances Elizabeth Nettleton		*Detroit*

Morton Isadore Netzorg	91	*Detroit*
George Louis Neuhoff, Jr., *l*	93	*Saint Louis, Mo.*
Grace Victoria Newbold	42	*Ann Arbor*
William Henry Newett	114	*Ishpeming*
Mary Louise Newkirk		*Detroit*
Albert Broadus Newman	90	*Waco, Tex.*
Percy Earl Newton		*Bellevue*
John Louis Nicholaus		*Schenectady, N. Y.*
Perry Frederick Nichols	60	*Corning, N. Y.*
Nels Ole Nicholson		*Ironwood*
Clyde Wallace Nicolson		*Detroit*
Clara Luella Nissly	59	*Saline*
Alta Elissif Nixon	28	*Birmingham*
John Merner Noble	53	*Cedar Falls, Ia.*
Lyle Maud Noble	30	*Hancock*
Howard LaRoy Noggle	56	*Andrews, Ind.*
George Frederick Noisom, *l*	94	*South Bend, Ind.*
Mortimer Seth North		*Calumet*
Grace Marie Northrup	27	*Pontiac*
Eleanor Victoria Norton	22	*Ewen*
Blenn Notley	30	*Vicksburg*
Robert Lev Novy	2	*Ann Arbor*
Elmer Dorman Noy	37	*Ann Arbor*
Bertha Irene Noyes		*Grand Rapids*
Ralph R. Obenchain	27	*South Whitley, Ind.*
Margaret Irene O'Brien	60	*Grand Haven*
Olive O'Brien		*Saginaw*
Mary Beatrice O'Callaghan	83	*Greenville*
Andrew Louis O'Connor	42	*Detroit*
William Gladstone O'Connor	S	*Grand Rapids*
Robert Nash Ogden, Jr	64	*Deadwood, S. Dak.*
William Lardner Ogden		*Deadwood, S. Dak.*
Melvin Verne Oggel		*Holland*
Horace Holmes Ohlmacher		*Detroit*
Ada Dorothy Oliver	91	*Norway*
Wade Wright Oliver	58	*Cincinnati, O.*
Clair Olney	72	*Leonidas*
Sophie Olsen		*Ishpeming*
James Leslie O'Meara		*Escanaba*
Margaret Kathleen O'Meara	30	*Monroe*
Mildred Mary Orr	16	*Saginaw*
Chase Salmon Osborn, Jr.	51	*Sault Ste. Marie*
Kenneth Dean Osborn	30	*LaPorte, Ind.*
Jessie Marcia Ostrander	96	*Kalamazoo*
Charles Herbert Otis	96	*Ann Arbor*
Henry Ottenheimer	61	*Cincinnati, O.*
Frank Joseph Ottens	88	*Papenburg, Germany*
Olive E. Outwater	92	*Ann Arbor*
Ann Elizabeth Owen		*Newark, O.*

Hilda Belle Oxby	60	*Rapid City*
Marion Packard	62	*Flushing*
Algernon Arthur Palmer		*Chelsea*
Glenn Ernest Palmer	89	*Ann Arbor*
Mary Palmer		*Ann Arbor*
Bessie Louise Park	30	*Kalamazoo*
Arthur Herbert Parkes	18	*Lakeside, O.*
Edgar Monroe Parkhurst	30	*Reed City*
Mora Marie Parkinson	95	*Centralia, Ill.*
Agnes Purcell Parks	56	*Elk Rapids*
Anna Soults Parks	56	*Birmingham*
Edna Parry	93	*Ann Arbor*
Helen Parry	95	*Ann Arbor*
Daniel Westlake Parsons	90	*Shelby*
Marguerite Marie Parsons		*Ann Arbor*
Bessie Elizabeth Pascoe		*Republic*
Beulah Laurietta Pascoe	56	*Republic*
Jessie Davina Paterson	59	*Chatham, Ont.*
Florence Elizabeth Paton	91	*Lake Linden*
Marion Laura Paton	56	*Imlay City*
Augustus Ramsey Patrick	79	*Kansas City, Mo.*
Victor Romaine Pattengill	72	*Lansing*
Eva Rosamond Pattison	78	*Silver Creek, N. Y.*
Frederick N. Paull	91	*Calumet*
Leona S. Paxton	88	*Marshall*
Hugh Clark Payne		*Jackson*
Irving Whittier Payne	76	*Victor, N. Y.*
Gladys S. Pearson	42	*Fremont*
Irene Docia Peavey		*Ann Arbor*
Robert Henry Peirson		*Ann Arbor*
Harold Frink Pelham	52	*Jackson*
Effie Mildred Penfield	98	*Perrinton*
Frank Wilfred Pennell	30	*Cheboygan*
Herminie Letitia Perkins		*Ann Arbor*
Nellie Louise Perkins	30	*Benton Harbor*
Richard Harold Perkins	62	*Detroit*
Wendell LeRoy Perkins	37	*Nashville*
William Henry Perkins	35	*Bay City*
Edward Avery Perry		*Dunkirk, N. Y.*
Emma Louise Peters	31	*Pontiac*
Sandy Peterson		*Gladstone*
Jost Wilford Petrie	71	*Buffalo, N. Y.*
John Phelan	93	*Richland*
Frances Willard Phillips	59	*Durand*
Julia Mary Phillips	62	*Fenton*
Christopher Charles Philp		*Bad Axe*
Robert Arnold Piatt	54	*Lansing*
Alice Pierce	64	*Otsego*
Robert Morey Pierson	30	*Paxton, Ill.*

Archibald Claud Pifher	58	*Coleman*
Harry H. Pincus	S	*Buffalo, N. Y.*
William Ford Pipes		*Calhoun, La.*
Raye Roberts Platt		*Algonac*
Louis Earl Pomeroy	4	*Ann Arbor*
Charles Thompson Porter	19	*Bay City*
Howard Clark Porter	55	*Williamston*
Idah Lois Porter		*Romeo*
Jessie Carolyn Porter	92	*Muskegon*
Martha Booth Porter	103	*Liberty, N. Y.*
Robert Carl Porter		*Greensburg, Ind.*
James Henry Pottinger	23	*Ann Arbor*
Edward Harold Pound	60	*Pontiac*
Alfred Hubert Povah	30	*Detroit*
Franklin Brown Powers	75	*Youngstown, O.*
Grace Powers	14	*Battle Creek*
Mary Louise Powers	30	*Grand Rapids*
John R. Poyser		*Canton, O.*
Dorothea Prall	101	*Saginaw*
Avery DeHart Prangen		*Hornell, N. Y.*
Frank Freeman Pray	S	*Ionia*
Thede Canwell Preston	61	*Ionia*
Charlotte Mae Prichard	26	*Ann Arbor*
Richard VanDeren Pride	S	*Ann Arbor*
John Lawrence Primrose		*Indianapolis, Ind.*
†David Chandler Prince, *e*	27	*Springfield, Ill.*
Walter Heineman Pritz	30	*Cincinnati, O.*
Claire Corinne Pryce	90	*Milton Junction, Wis.*
Catharine Elizabeth Mary Purtell	S	*Ann Arbor*
Helen Wark Pyle	26	*Toledo, O.*
Arthur Farwell Quigley	20	*Utica, N. Y.*
Clement Patrick Quinn		*Saginaw*
Walter Carl Radeke		*Saginaw*
Leta Anna Rains	56	*Ypsilanti*
Willett Forrest Ramsdell	28	*Red Oak, Ia.*
Bernice Winifred Randall	92	*Oxford*
Josephine Elvin Rankin	103	*Ann Arbor*
Marie Indabelle Rasey	86	*Ann Arbor*
†Harry S. Rawdon, *e*	64	*Marlette*
Luella May Rayer		*Ann Arbor*
Harry Samuel Read	6	*Delevan, N. Y.*
Rebecca Ream	S	*Ann Arbor*
Benjamin Harry Reck, *l*	93	*Mendota, Ill.*
Allen Martin Reed		*Riverside, Ill.*
Harrie Russell Reed	34	*Cheboygan*
Marguerite Estelle Reed	26	*Moline, Ill.*
Ethel Anna Reese	56	*Mansfield, Pa.*
Edgar Blaine Reichert		*Ann Arbor*
Bonnie Ola Reid	98	*Ann Arbor*

Gladys M. Reid	56	*Battle Creek*
Weldon Rockliffe Reid		*Detroit*
John Jacob Reighard		*Ann Arbor*
Paul Reighard	66	*Ann Arbor*
Dexter Keith Reinhart		*Midland*
John William Reish		*Delphi, Ind.*
Frank Adolph Reitz	19	*Evansville, Ind.*
William Cowie Restrick	38	*Detroit*
Heinrich Reye, *m*	90	*Eisenach, Germany*
John Foster Reynolds	4	*South Bend, Ind.*
Mary Hargrave Reynolds	59	*Potsdam, N. Y.*
Henry Rhetta	64	*Oswego, N. Y.*
Bel Ribble	57	*Detroit*
Edward Richard Rice	50	*Alpena*
Lela Florence Rich	30	*Fort Wayne, Ind.*
Karl Greene Richards	74	*Rochester, N. Y.*
Roy Spence Richardson	37	*Alpena*
Mildred Ella Richmond	61	*Geneseo, Ill.*
Edith Hazel Rings	8	*Ann Arbor*
Francis Leo Riordan	22	*London, England*
Alice Maynard Ripley	26	*Sault Ste. Marie*
Coral Deborah Rix	59	*Mattawan*
Floyd Vernon Rix	50	*Oscoda*
Bess Louise Roark	94	*Ann Arbor*
Clarence William Roberts, *l*	91	*Cassadaga, N. Y.*
Flora B. Roberts	S	*Durand*
†George Claire Robinson, *d*		*Wayne*
Mary Frances Robinson	35	*LaJunta, Colo.*
William Ralph Robinson	26	*Boyne City*
Julian Paris Rodgers	34	*Montgomery, Ala.*
F. A. Roethlisberger	8	*Hillsdale*
Florence Rogers	31	*Franklin, Pa.*
Nellie Lois Rogers	30	*Burley, Idaho*
Esco Ezekiel Rose		*Big Rapids*
Mabel Estelle Rose		*Ann Arbor*
Edwin Jacob Rosenberg		*Omaha, Neb.*
Pauline Rosenberg	34	*Omaha, Neb.*
Ralph Rosenberg	94	*South Bend, Ind.*
Rose Leila Rosenfeld	34	*Manistee*
Benjamin Franklin Rosenthal, Jr.	4	*Ann Arbor*
Frank Cullis Ross	87	*Clarks Mills, Me.*
Fred Rapp West Ross	24	*Elizabeth, N. J.*
Helen Roberta Ross	87	*Crystal Falls*
Walter Allen Roth		*Mount Eaton, O.*
Harold Leverne Rotzel, *l*	92	*Honeoye Falls, N. Y.*
Winnifred Anderson Rowe		*Calumet*
Clarence H. Royon	64	*Houston, O.*
Otto Herman John Ruettinger		*Ida*
James Floyd Runner	4	*Shelby*

Mary Agnes Ruppe	94	*Hancock*
Frances Rachel Russell	16	*Peabody, Mass.*
Rayburn Lackland Russell		*Pekin, Ill.*
Ruth Russell	97	*Ann Arbor*
George Stanley Rutherford	97	*Madrid, N. Y.*
Beatrice Marion Ruthven	90	*Ann Arbor*
Michael Mackay Ryan	25	*Brimley*
Hope Sabin		*Sault Ste. Marie*
Edward Herbert Saier		*Lansing*
Mary Marjorie Samson	88	*Spokane, Wash.*
Mary Margaret Sanford	93	*Sandusky, O.*
Alfred Wood Santway	68	*Russell, N. Y.*
El Conan Henry Saulson		*Grand Marais*
Bessie Maxime Saur		*Detroit*
Cornelius Elisha Sawyer	98	*Toledo, O.*
Frank Eugene Sayers, *m*	75	*Fisher, Ill.*
Robert Felix Schanz		*Fort Wayne, Ind.*
Albert West Schell		*Cincinnati, O.*
Frederick Henry Scherer	24	*Ottawa, Ill.*
Norman William Scherer	99	*Sandusky, O.*
Paul Hiram Schick	28	*New Berlin, O.*
Philip Henry Schlapp	26	*Fort Madison, Ia.*
Henry Aloysius Schlink, *m*	58	*New Riegel, O.*
Philip Theodore Schnitzspahn	27	*Buffalo, N. Y.*
Carl Gustave Schoeffel		*Freeport, Ill.*
Raleigh Schorling	38	*Batesville, Ind.*
Edwin William Schreiber	48	*Saginaw*
Carl Louis Schroeder		*Fort Wayne, Ind.*
Lewis William Schroeder	61	*Quincy, Ill.*
†Henry Berg Schuerman, *e*	23	*Carrollton, Ky.*
Belle Frances Schulman	88	*Brooklyn, N. Y.*
Eugene Wellborne Scott		*Detroit*
Fred Francis Scott		*Marion, O.*
Henry Woodruff Scott	32	*Cranford, N. J.*
Karl McCormick Scott, *m*	96	*Connellsville, Pa.*
Lillian Alice Scott	23	*Hancock*
Ruby Marguerite Scott		*Toledo*
Robert McGregor Scotten		*Detroit*
Foster David Scruton	30	*Madrid, N. Y.*
Francis Joseph Scully	12	*Dunkirk, N. Y.*
Lester Charles Scully		*Hollister, Cal.*
George William Scupham	28	*Homewood, Ill.*
William Ira Searles	16	*Canandaigua, N. Y.*
Clinton Ely Sears	38	*Glendale, O.*
Margaret Euphemia Seath	57	*Detroit*
Alice Justine Seeber		*Limerick, N. Y.*
Carroll Hamilton Seeley		*Aberdeen, S. Dak.*
Agnes Frances Seelye		*Ann Arbor*
William Conrad Seipp, Jr.	80	*Chicago, Ill.*

Henry G. Sellman, Jr., *l*	93	*Ann Arbor*
Abraham Joseph Seltzer	48	*New York, N. Y.*
Robert Jay Selzer	11	*Cleveland, O.*
Francis Eugene Senear	30	*Salamanca, N. Y.*
Grace Marion Sewell	87	*Detroit*
Helen Pernin Shafer	88	*Ann Arbor*
Morrison Shafroth, *l*	97	*Denver, Colo.*
Otis Guy Shanafelt	94	*Dowagiac*
Charles Edwin Shank		*Angola, Ind.*
Milton Shaw		*Morrice*
Robert Doane Shaw	30	*Ovid*
Leroy Arthur Sheetz	88	*Battle Ground, Ind.*
†Vernon Charles Sheffield, *e*	16	*Chicago, Ill.*
Meda Lorraine Sheldon	S	*Bay City*
Margret Rebecca Shelly	100	*Traverse City*
Helen Sears Shepard	62	*Chicago, Ill.*
Norman Kirkwood Sheppard	30	*Ann Arbor*
John Wesley Sherrick	44	*Bowen, Ill.*
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Katharine Margaret Sherwood		*Toledo, O.*
†Marion Jay Sherwood, *e*	60	*Plainwell*
Elaine Beatrice Shields		*Hancock*
Blaine Brown Shimmel	30	*Grand Rapids*
John Theron Short	63	*La Grange, Ind.*
Martin Joseph Shugrue		*Colchester, Conn.*
Ellen Dorothy Shulz	102	*Saginaw*
Paul Victor Siggers	25	*Washington, D. C.*
Richard James Simmons	60	*Ann Arbor*
Ralph Waldo Simpson	52	*Pittsburg, Pa.*
Emory Walter Sink	68	*Ann Arbor*
Belle Margaret Siple	18	*Ann Arbor*
Rufus George Siple	26	*Ann Arbor*
Elsie May Sisman	56	*Ann Arbor*
Ida Sitler	88	*Mauch Chunk, Pa.*
Johannes Siveke, *m*	91	*Toledo, O.*
Alice Mariette Slater	93	*Pontiac*
Howard Leslie Slonecker	21	*Hamilton, O.*
Holland Brownback Slusser	90	*Canton, O.*
Aline Morley Smith		*Pontiac*
Arthur Leon Smith	107	*Reed City*
Bert Thompson Smith	16	*Hammond, N. Y.*
Edgar Allen Smith	48	*Otsego*
Emerson Reid Smith		*Saint Ignace*
Harry Hardy Smith	32	*Mobile, Ala.*
Harlan Samuel Smith	30	*Pontiac*
Herbert Wilson Smith, *l*	90	*Toledo, O.*
Herschel C. Smith	4	*Phoenix, Ariz.*
Howard Rea Smith	57	*New Castle, Ind.*
Lida Mae Smith	68	*Wellsville, O.*

Margaret Inglis Smith	61	*Ann Arbor*
Vivian Genevieve Smith	30	*Lansing*
Wayne Gardner Smith		*Albion*
Robert Ingersoll Snajdr	49	*Cleveland, O.*
Ralph Benton Snively	89	*Lanark, Ill.*
Clara Louise Snow	106	*Dearborn*
Barbara Snure	56	*Edwardsburg*
Irene Snyder	52	*Churchville, N. Y.*
Ralph Monroe Snyder	28	*Decatur, Ill.*
Harold Dale Souter, *l*	93	*Shelby*
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Rolfe Chapin Spinning	16	*Jackson*
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Henry Spring		*Ann Arbor*
Walter Paul Staebler		*Ann Arbor*
Myrta Lulu Stafford	102	*Detroit*
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Maude Emma Staiger	77	*Michigan City, Ind.*
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John Meddaugh Stanley		*Detroit*
Maqueston Stanley		*Traverse City*
Chester Otis Staples	50	*Wycliffe, B. C.*
Evelina Manuel Stark	88	*Ann Arbor*
Lillian Georgian Stauch	30	*Birmingham*
May Katharine Stauffer	100	*Washington, D. C.*
Stowell Cortland Stebbins	S	*Lansing*
Emory Budd Stedman	34	*Lockport, N. Y.*
Elizabeth Beal Steere	90	*Ann Arbor*
Esther Marguerite Steglich	90	*Grand Rapids*
Irving Freiler Stein	93	*Chicago, Ill.*
Leon Steinberg	63	*Detroit*
Marie Gertrude Steketee	30	*Ann Arbor*
Anna Leda Stellwagon	30	*Ann Arbor*
Frank Lawrence Stephan		*Andrews, Ind.*
John Clarence Stephens		*Indiana Harbor, Ind.*
Alice Virginia Sterling	61	*Negaunce*
Louie Desenberg Stern	30	*Kalamazoo*
Arla Belle Stevens	30	*Rockland*
Harrison Albert Stevens	92	*Whitmore Lake*
Mamie Stevens	50	*Ann Arbor*
Merritt Judson Stevens	4	*Warsaw, N. Y.*
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Frederick Hoffman Stevenson		*Rochester, Ind.*

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Augustus Burns Stewart, *m*	98	*Chesaning*
Garrett Dunbar Stewart		*Detroit*
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Matthew Hosmer Tinkham	30	*Romulus*
Harold Titus	30	*Traverse City*
Allman Avon Todd	77	*Kalamazoo*
James Leo Tomlinson	90	*Cortland, N. Y.*
Roland Egbert Toms	36	*Detroit*
Kinsaku Tonouchi	29	*Mito, Japan*
Alice Margaret Torrey	26	*Ann Arbor*
Bernice Mae Torrey	60	*Detroit*
Grace Edna Torrey	62	*Ann Arbor*
Maurice Thompson Toulme	30	*Odin, Ill.*
Walter Kellogg Towers, *l*	93	*Paw Paw*
George Lewis Towne	51	*Des Moines, Ia.*
John Hurlburt Townley		*Jackson*
Frank Sias Towsley		*Midland*
Thomas Henry Tracy, Jr.		*Toledo, O.*
Henry Marcus Trammel		*Chicago, Ill.*
Carlos Luis Traverso	51	*Cajamarca, Peru, S. A.*
Roy James Trebilcock	60	*Ishpeming*
Carey Jacob Tremmel	7	*Ann Arbor*
Cyrus Alfred Browning Tremper	56	*Ann Arbor*
Edith Mildred Knights Tremper	78	*Ann Arbor*
William Frederick Tribe	39	*Milwaukee, Wis.*

William Campbell Trible		*Ann Arbor*
Wallace Lewis Trigg	30	*Youngstown, O.*
Albert Bruce Tripp	56	*Ann Arbor*
Opal Ennis Trott	24	*Ann Arbor*
Charles Davis True	S	*Fruitport*
John Arthur True, *h*	97	*Ann Arbor*
Frances Cleveland Tubbs	111	*Chesaning*
Lila Almeda Tubbs	30	*Chesaning*
†Frank Willard Tufts, *n*	23	*Milwaukee, Wis.*
Mary Catherine Tunison	30	*Ann Arbor*
Louise Tuomey	91	*Ann Arbor*
Katherine Genevieve Tuomy	30	*Ann Arbor*
Alexander Loudin Turner, *m*	80	*Ravenna, O.*
Louise Esther Tuthill	38	*Detroit*
Dorothy Tyler	S	*Meadville, Pa.*
Raymond Charles Tyler	9	*Chicago, Ill.*
Mary Alice Ulrich	70	*Battle Creek*
Oscar M. Unger		*Dundee*
Wilbur Edward Uren		*Lead, S. Dak.*
Alice Lombard Vail	74	*LaPorte, Ind.*
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Tillmon VanBebber	S	*Palmyra, Ill.*
George C. VanDuren	52	*Holland*
Arietta Orlean VanNess	92	*Niles*
Carrie May VanSchoick		*Jackson*
Irvin VanTassell	90	*Brooklyn, N. Y.*
Henry VanWesep	12	*Holland*
William Alexander VanWinkle	59	*Detroit*
William Sidney Vardon	52	*Newberry*
Gladys Clara Vedder	48	*Rushville, Ill.*
Ella Martha Veenboer		*Northville*
David Studabaker Vesey	27	*Fort Wayne, Ind.*
Warren Jay Vinton	69	*Detroit*
William R. Vis	4	*Zeeland*
Alfred Voight		*Camden, N. J.*
Ethel Volland	62	*Grand Rapids*
Clarence Lewis vonTacky		*Titusville, Pa.*
Sigrid Anna von Zellen, Ph.C.	S	*Skanee*
Helen Louise Vorce	104	*Ypsilanti*
Minnie Frances Votruba	36	*Traverse City*
Clara Ellen Wadhams		*Ann Arbor*
Melvin Leroy Wagner	28	*Belding*
Joseph Benjamin Wahl	104	*Monroe*
Fred Burkhart Wahr	70	*Ann Arbor*
Vera May Wait	89	*Friendship, N. Y.*
Sarah Wandell Waite	25	*Toledo, O.*
Stanley Byron Waite		*Yonkers, N. Y.*
Frances Sylvia Walbridge	55	*Kalamazoo*
Hugh Christie Waldman	28	*Flint*

Gerald M. Walker	54	*Hudsonville*
Lewis William Walker	58	*Denison, Tex.*
Russell Wentworth Walker	22	*Detroit*
Simon Aloysious Wallkowiak		*Duluth, Minn.*
George Wallace, *m*	68	*Toledo, O.*
Lloyd Wallis	34	*Bay City*
Edward Joseph Walsh	58	*Denver, Colo.*
Adelbert Merret Walsworth	62	*Fremont*
Damon Orian Walthall		*Paola, Kans.*
Thomas Cooley Wanty	8	*Grand Rapids*
Elde Hulett Ward	60	*Rantoul, Ill.*
Harry LeVerne Ward	51	*Harvard*
Henry Levy Ward	90	*Beaumont, Tex.*
Sherman Carl Ward		*Alexandria Bay, N. Y.*
Sarah Elizabeth Ware	2	*Kansas City, Mo.*
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Lynda Anita Watkins		*Ann Arbor*
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Elizabeth Weisman		*Farwell*
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Elsie Weitz	12	*Cleveland, O.*
Marshall A. Welbourn	4	*Union City, Ind.*
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Paul Bion Welch		*Bangor*
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Marguerite Horton Wells	30	*Meshoppen, Pa.*
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William Willson Welsh	30	*Ann Arbor*
Charles Marion Welstead	30	*Detroit*
Mary Louise Welton	88	*Grand Rapids*
Christian N. Wenger	30	*Caledonia*
Henry Lee Wenner, Jr., *m*	94	*Tiffin, O.*

Edward Christ Wente	65	*Westgate, Ia.*
Harold Arnold Wentworth	47	*Bay City*
Orrin John Wenzel	10	*LeRoy*
Alene West	102	*Sardis, Miss.*
Lynn Edwin Weston	56	*Ann Arbor*
Wilson Joseph Wettereau	12	*Hazelton, Pa.*
William Walter Wheatley		*Harrisburg, Ill.*
Helen Knowlton Whedon		*Norwood, Mass.*
Eleanor Pauline Wheeler	88	*Indianapolis, Ind.*
John Tallman Wheeler	11	*Portland, Ore.*
Paul Albert Wheelock	87	*Owatonna, Minn.*
Ruth Vee Wheelock	57	*Goodrich*
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Everett Clements White	92	*Boyne City*
James R. White	2	*Dowagiac*
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Myrtle Elizabeth White	96	*Coldwater*
Orville Ernest White	60	*Boyne City*
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Beulah Grace Whitney	62	*Detroit*
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Flossie Belle Wickware		*Pontiac*
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Mary Louise Wieber	8	*Houghton*
Earl Charles Wightman	30	*Cleveland, O.*
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Evan Charles Williams		*Portsmouth, O.*
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Kittie Louise Williams	50	*Williamston*
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Valdo Frank Wilson	56	*Denver, Colo.*
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Annie Pearl Windsor	52	*Iron River*
Byron Merrill Winegar	47	*Escanaba*
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John Currie Winter	24	*Detroit*
Ernest Mark Wisdom	16	*Ann Arbor*
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Marian Edith Woessner	58	*Ann Arbor*
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Hazel Katherine Wolcott	6	*Grand Rapids*
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Alfred Charles Wortley		*Ypsilanti*
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Florence Sarena Wright	106	*Saint Louis*
George Green Wright	4	*Detroit*
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Pauline Wurster	101	*Ann Arbor*
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Hector Stewart Young	58	*Marion, O.*
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STUDENTS*

RESIDENT GRADUATES

NAME	RESIDENCE
Benjamin Meyer Ferguson, B.S., *Purdue University,* 1909	*Chicago, Ill.*
Clarence Jasper Green, B.S. (C.E.), 1908	*Hillsdale*
Perry Eugene Howard, B.S. (Chem.E.), 1908	*Ionia*
Edgar Steiner, B.S. (E.E.), 1909	*Saint Louis, Mo.*
Otto Monroe Sutherland, B.S. (M.E.), 1909	*Ann Arbor*
Glenn Lewis Tower, B.S. (Chem.E.), 1909	*Ann Arbor*

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*The letters in the column headed Course indicate the line of work the student has chosen to pursue: C, denoting civil engineering; M, mechanical engineering; E, electrical engineering; Ch, chemical engineering; Mar, marine engineering; A, architecture; A E, architectural engineering; G, geological engineering; Con, conservation engineering; S, miscellaneous studies not leading to any degree. As students are not asked to make choice of course until the beginning of their second year, the absence of a letter indicates that the student is in his first year. The figures in the column headed Credit indicate the number of hours of work taken by the student prior to the beginning of the current academic year, 1909-1910, and completed without conditions, or credited to him on advanced standing. By an hour of work is meant the equivalent of one exercise a week for one semester. A dagger (†) preceding a student's name signifies that he also pursued studies for the whole or part of the year, in some other Department of the University, indicated by an italic letter following the name, to-wit: *a,* Department of Literature, Science, and the Arts; *m,* Department of Medicine and Surgery; *l,* Department of Law; *p,* School of Pharmacy; *h,* Homœopathic Medical College; *d,* College of Dental Surgery.

CANDIDATES FOR AN ADVANCED DEGREE STUDYING IN ABSENTIA

NAME	RESIDENCE
Grant David Bradshaw, B.S. (M.E.), 1904	*Chicago, Ill.*
Lester Kirschbraun, B.S. (Chem.E.), 1904	*Chicago, Ill.*
Francis Duncan Shenk, B.S. (Chem.E.), 1903	*Medford, Mass.*

UNDERGRADUATES

NAME	COURSE	CREDIT	RESIDENCE
Leon Everette Abell		8	*Lowville, N. Y.*
Rafael Hipolito Aguilar	Ch	80	*Candaba, Pampanga, P. I.*
John Howard Albrecht	E	116	*Pittsburg, Pa.*
Theodore Armin Lothar Albrecht	Ch	41	*Detroit*
†Peter Ambrose Alexander, *p*			*Iron Mountain*
Albert Persons Allen	M	76	*Benton Harbor*
David Way Allerdice	M	100	*Indianapolis, Ind.*
Karl Brownson Allured	E	60	*Evart*
George Ambrose	E	24	*Ligonier, Pa.*
Edward Theodore Anderson			*Covert*
Frederick William Anderson	E	32	*Bay City*
George Potter Anderson	M	108	*Grand Rapids*
Harold Victor Anderson	Ch	36	*Manistique*
Lester Francis Anderson			*Shelby*
Wilbur E. Appleyard	Ch	54	*Jamestown, N. Y.*
George Warfield Armstrong	Ch	33	*Middleville*
Schuyler Arnold	M	28	*Barnards, N. Y.*
Elmer LeRoy Astleford	A	29	*Des Moines, Ia.*
Lew Atkinson	Ch	54	*Niles*
Ralph Weber Austin	C	60	*Toledo, O.*
Curtis Beall Backus	C	115	*Glencarlyn, Va.*
Robert Edwin Backus	C	25	*North East, Pa.*
Louis Arthur Baier		4	*Los Angeles, Cal.*
Albert Ross Bailey	C	105	*Lakewood, O.*
Charles Starbuck Bailey		4	*East Paris*
Cecil Sell Baker			*Oakland, Cal.*
Charles Hatch Baker	AE	33	*Great Falls, Mont.*
Clinton Buell Baker	M	70	*Chicago, Ill.*
Robert Francis Baker	E	58	*Ann Arbor*
Roscoe Herman Baker			*LeMoyne, O.*
Elwyn Curtis Balch	E	65	*Kalamazoo*
Ralph Frank Baldwin			*Grand Rapids*
Harold Lyman Ballard	E	32	*Ann Arbor*
Charles Nelson Ballentine	M	133	*Port Huron*
James MacAllen Ballentine	M	84	*Port Huron*
Hermann Banbrook	C	119	*Medina, N. Y.*

Erwin Palmer Bancroft	E	66	*Ann Arbor*
George Homer Bancroft	M	32	*Ann Arbor*
George Edward Bardeen, Jr.	M	46	*Otsego*
Ralph Feiner Barker	Ch	116	*Ann Arbor*
John Clarence Barnard	C	32	*Marinette, Wis.*
Robert Barnard	E	106	*Frederick, S. Dak.*
Gladeon Marcus Barnes	C	110	*Hastings*
Walton J. Barnes		12	*Detroit*
Charles Barnett			*Detroit*
Elmer Wayne Barron	M	68	*Detroit*
†Raymond Ralph Barry, *a*		8	*Chicago, Ill.*
Herbert Hall Bartlett			*Coldwater*
Carl Joseph Barton	Ch	33	*Big Rapids*
David Charles Barton			*Natchez, Miss.*
Charles Eugene Bassett	M	71	*Independence, N. Y.*
Owen Warner Bauer	E	75	*Los Angeles, Cal.*
Philip Edward Baugh		8	*Detroit*
Clarence Case Baushke			*Benton Harbor*
James Robert Bazley	M	78	*Oswego, N. Y.*
Clarence Hiram Beach	Ch	33	*Ann Arbor*
Marion Wilbur Beach	C	75	*Keuka Park, N. Y.*
Rolla Beal	Ch	120	*Fenton*
Bruce Beardsley	E	33	*Hersey*
Jay Charles Beaumont	M	120	*Galesburg*
Rudolph Adolph Bechtold			*Bellaire*
Dwight O. Becker	C	106	*Jackson*
Clayton Wing Bedford	Ch	128	*Waldron*
Herbert Manning Beechinor	E	106	*Mount Vernon, N. Y.*
Glenn William Behler	C	26	*Lowell*
Ferdinand George Behmlander			*Bay City*
Verner A. Belcher	Ch	75	*Milan*
Wayne Isaac Belden		17	*Westfield, N. Y.*
Samuel J. Bell	C	88	*Charlotte*
Harry Tristam Bellamy	Ch	107	*Jackson*
Vladimir Beloborodorff	Mar	97	*Saint Petersburg, Russia*
Albert Benbrook	M	72	*Chicago, Ill.*
Charles Holbrook Benedict	M	81	*Perry, N. Y.*
Frank Albert Benford	E	110	*Mount Clemens*
Carroll Guernsey Bennett	M	124	*Chicago, Ill.*
Elton John Bennett	M	12	*Salamanca, N. Y.*
Maurice Darius Bensley	C	78	*Hamburg, N. Y.*
Hymen Manuel Berliant	C	115	*Chicago, Ill.*
Ralph Louis Berridge	M	39	*Detroit*
Arthur Edward Bertrand	M	64	*Muskegon*
Thomas Doniphan Best	A	71	*Maysville, Ky.*
George Allan Biehn		8	*Port Huron*
Chester Henry Biesterfeld	Ch	117	*Saginaw*

Henry Jay Bigelow		21	*Chateaugay, N. Y.*
William Russell Bigelow	Ch	76	*Joliet, Ill.*
Morgan Smith Biggs	C	59	*Grand Rapids*
Edwin Courtney Billings	M	28	*Detroit*
Don William Bingham	C	28	*Traverse City*
Ralph Loring Binney	E	65	*Toledo, O.*
Charles Wesley Bird		4	*Azalia*
Clarence Arthur Bird	E	76	*Jackson*
William G. Bisch		4	*Oak Harbor, O.*
George Holman Bishop	E	40	*Ann Arbor*
Remsen Bishop	E	78	*Detroit*
Harrie Gibbs Bissell	M	32	*Munising*
Ray Wesley Bixby		8	*Ann Arbor*
Mills Renwick Blackwood		10	*South Lyon*
Adolph John Blecki			*Detroit*
Louis Bleich	C	36	*Buffalo, N. Y.*
Matthew Rhodes Blish	M	76	*Kewanee, Ill.*
Myron Blodgett	C	110	*Bay City*
Edward Wilson Blood	M	37	*Kalamazoo*
Oscar Blumberg	E	66	*Detroit*
Loren Ordville Blunt			*Warren*
Otto Ernst Carl Boertmann	M	48	*Saginaw*
John Cowan Bogle, Jr.	E	119	*Danville, Ky.*
Nelson Runyon Boice	C	10	*Cheyenne, Wyo.*
Guy Willard Bolté	M	125	*Winnetka, Ill.*
Edwin Booth	C	111	*Dallas, Pa.*
Sherman Booth	Con	21	*Ann Arbor*
Stanley Evans Borleske	C	30	*Spokane, Wash.*
Paul Lawrence Born	Ch	34	*Allegan*
William Orlan Boston			*Ann Arbor*
Harry Bouchard	C	67	*Detroit*
James Ben Boult			*Westfield, N. Y.*
Oliver Gilbert Bowen	M	65	*Detroit*
Arthur Rockwell Bowerfind		26	*Adrian*
Joseph Samuel Bowman	E	71	*Ocate, N. Mex.*
Ralph Arthur Boyles	E	115	*Emporia, Kans.*
Robert Hammond Boynton	C	114	*Batavia, N. Y.*
Alfred Taylor Braden	Ch	32	*Duluth, Minn.*
Clyde Major Bradley	C	49	*Geneva, O.*
Lewis Frank Brames	E	65	*Fort Wayne, Ind.*
Claud Lamar Brattin	M	29	*Lorain, O.*
Harold Isaac Braudy	M	17	*Detroit*
Harry Eugean Brelsford	E	66	*Niles*
Peter Edward Brender	C	44	*Otsego*
Harold Browning Brenton	Ch	25	*Pittston, Pa.*
Rollin Tracy Brewer	E	32	*Sherman, N. Y.*
Harry Leon Brightman	C	76	*Ann Arbor*
John Henry Bringhurst	C	126	*Houston, Tex.*

Mahlon Hackley Bristol			*Battle Creek*
Arthur Sayer Brodhead	E	113	*Buffalo, N. Y.*
Warren Luther Brodie	Ch	20	*LeRoy, N. Y.*
Lawrence Langham Brotherton	Ch	12	*Detroit*
Allen Hosley Brown		8	*Northville, N. Y.*
Edwin George Brown			*Detroit*
George Everett Brown	E	29	*Glendive, Mont.*
George Franklin Brown			*Lexington, O.*
Harry Leonard Brown	E	32	*Grand Rapids*
Louis Dickinson Brown	Ch	33	*Wayne*
Prescott George Brown			*Detroit*
Ralph Edgar Brown	C	70	*Manistique*
Ralph Park Brown	C	65	*Hammond, N. Y.*
Samuel Bruce Brown		66	*Ash Grove, Mo.*
Tolbert Heagy Brown	E	24	*Steelton, Pa.*
William Brown, Jr.			*New Bedford, Mass.*
Harold Sidney Browne	M	103	*Bay City*
Samuel Buch		4	*Detroit*
George Albert Buchanan			*Jackson*
Charles Edward Buck		4	*Detroit*
Raymond Porter Buck	C	27	*West Chesterfield, Mass.*
Glynne Gladstone Buell	Ch	77	*Union City*
Robert Louis Buhrman	Ch	17	*Cincinnati, O.*
Charles Christian Bundchu	M	80	*Independence, Mo.*
Edward Morris Burd	C	108	*Grand Rapids*
Ralph Emerson Burg	C	67	*Ann Arbor*
Joseph Delaney Burge	Ch	40	*Louisville, Ky.*
Herbert Leslie Burgess		18	*Washington, D. C.*
Aubrey Everett Burnham	E	48	*West Medford, Mass.*
Lou Burt, Jr.	M	17	*Detroit*
Robert Nathan Burton	E	115	*Oak Park, Ill.*
Victor Raymond Burton	C	38	*Oak Harbor, O.*
James Verney Bush			*Corunna*
Merrill Marius Bush	AE	17	*Ann Arbor*
John Frederick Butterfield		4	*Ann Arbor*
†Aaron Chapman Button, *a*	Con	24	*Farmington*
Harold Thompson Butts		9	*Ann Arbor*
Charles Ernest Buysee	M	41	*Detroit*
José Maria Caballero, Jr.	E	52	*San Sebastian, P. R.*
Sherman Weeks Cady	C	72	*Troupsburg, N. Y.*
Jesse Thomas Caldwell		4	*Chicago Heights, Ill.*
Harry Francis Calisch			*Toledo, O.*
Hobart Melville Calkins		16	*Los Angeles, Cal.*
Norman Whitfield Calvert			*Mount Clemens*
Collis Ormsby Campbell			*Louisville, Ky.*
Harry Linn Campbell			*Alpena*
Roy Stuart Campbell	Mar	37	*Detroit*

William James Carhart	Mar	9	*Pontiac*
Alfred Carlson	E	32	*Bear Lake*
Raymond Earl Carlson	E	32	*Bear Lake*
Orrin Otis Carpenter	M	74	*Port Huron*
William Spencer Carpenter	C	20	*Menominee*
John Michael Carroll	M	63	*Avon, N. Y.*
Ray J. Carroll	M	68	*Richmond, Ind.*
Richard John Carter			*Haskins, O.*
Harry Clyde Carver		10	*Waterbury, Conn.*
William Mallory Casey	M	119	*Cedar Falls, Ia.*
Wilbur Lincoln Casler	M	39	*Sault Ste. Marie*
Clifford Jonathan Casner			*Youngstown, O.*
John Robert Caughey	Ch	36	*Ann Arbor*
Everett Cavanagh	M	25	*Lansing*
Amos Edward Chaffee	M	85	*Detroit*
Dale S. Chamberlin	Ch	46	*Ann Arbor*
Baylus James Chamblin	C	42	*Mobile, Ala.*
Thomas Chandler	C	113	*Sault Ste. Marie*
Franklin Henry Chapin	C	81	*Vanderbilt*
Robert Hadley Chapin	M	32	*Canton, O.*
Rolland Dayton Chapman	E		*Rockford*
Thomas Lynn Chase	C	82	*Oshkosh, Wis.*
Paul Eric Cheney			*Lyndonville, Vt.*
Clarence Winfield Christen			*LeMoyne, O.*
Edwin R. Christie		8	*Muskegon*
Leon Snyder Church	E	103	*Albion, N. Y.*
LaVerne E. Clapp	E	36	*Ann Arbor*
Alva Benson Clark	E	66	*Ann Arbor*
Edward James Clark	C	21	*Saint Thomas, Ont.*
John Foster Clark	Ch	122	*Caro*
Mortimer Addison Clark		8	*Rochelle, Ill.*
Nelson John Clark	Mar	113	*Detroit*
David Daniel Clarke	E	115	*Grand Rapids*
Lawrence Hutchinson Clarke	M	129	*Chicago, Ill.*
William Wallace Clements	M	39	*Bay City*
Clarence Oliver Clow		14	*Seymour, Ind.*
Edwin Launcelot Clubbs	AE	89	*Pensacola, Fla.*
Glen Lewis Codman	C	61	*Traverse City*
William F. Codrington	E	109	*Grand Rapids*
William Thomas Lee Cogger	E	119	*Navarre*
Martin Paul Cogswell	C	68	*Oswego, N. Y.*
Clyde Willard Colby	C	72	*Leavenworth, Kans.*
Stacy Albert Cole	C	49	*Hillsdale*
Kenelm Winslow Collamore			*Toledo, O.*
Frederick Leonard Coller		14	*Coldwater*
George Collingwood	M	17	*Holyoke, Mass.*
Jeremiah Joseph Collins	C	29	*South Lee, Mass.*
Burr Collyer	Ch	108	*Union City*

Raymond Weaver Colman		4	*Middleport, N. Y.*
Henry Louis Coman			*Menominee*
Richard Carman Combes	E	20	*Canandaigua, N. Y.*
Rezin Lewis Combs	E	49	*South Haven*
Fred Arthur Compton			*Fort Wayne, Ind.*
Herbert Luther Connell	M	70	*Ann Arbor*
Thomas Raymond Connell			*Buffalo, N. Y.*
Walter Louis Connelly	C	91	*Saginaw*
Ralph Joseph Conrad		18	*Helena, Mont.*
Chauncey Ferris Cook, Jr.		12	*Hillsdale*
Fred Klare Cook	C	58	*Celina, O.*
George Wight Cooke	C	28	*Bay City*
Walter Sherman Cookinham	C	105	*Utica, N. Y.*
Harry Carman Coons		32	*Findlay, O.*
Gage Whitman Cooper	C	31	*Detroit*
Robert Leroy Cooper	E	92	*Saint Thomas, Ont.*
Claude H. Coppes	M	59	*Nappanee, Ind.*
Harry Harrison Corbin			*Rochester, N. Y.*
George Bradford Corless	C	46	*Silverwood*
Webster David Corlett			*Oak Park, Ill.*
Matt Wallbridge Corwin	C	49	*Union City*
Emery Cox	Mar	67	*Brightwood, D. C.*
Grauley Stewart Crane	E	115	*Port Huron*
Jacob Leslie Crane, Jr.			*Charlevoix*
Grant Morehead Crawford	Ch	28	*Detroit*
William Elon Crawford	E	26	*Ann Arbor*
Ward Olin Crossman	C	35	*Buchanan*
Volney Robbins Croswell	Ch	81	*Moline, Ill.*
Glenn Ernest Cullen	Ch	22	*Isle St. George, O.*
Frederick Louis Cumming	C	68	*Helena, Mont.*
Lloyd Anderson Cummings	Ch	59	*Detroit*
Peter Augustine Cummins	M	116	*Detroit*
Daniel Mansfield Cunningham			*Ann Arbor*
Lawrence Vincent Curran	M	103	*Louisville, Ky.*
Robert Chalmers Curtis	M	69	*Whiting, O.*
Samuel Watkins Cushman	Mar	120	*Ann Arbor*
Harvey Donald Cutler		4	*Ionia*
Herbert John Cutler		8	*Buffalo, N. Y.*
Wellington Dabolt		4	*Irving, N. Y.*
Nishan Agayeg Dagavarian	M	35	*Indianapolis, Ind.*
LaVerne James Dailey			*East Lake*
Robert Hunt Dailey	C	50	*Ann Arbor*
Leonard Neil Dalby			*Mount Clemens*
William Amon DaLee	C	60	*Bay City*
Ralph James Daly	E	32	*Empire*
Frank Carl Damskey	Ch	71	*Grand Rapids*
Paul Ashmore Daniells	C	66	*Kalamazoo*
Frank Daniels	C	43	*Seattle, Wash.*

Alexander Harrington d'Arcambel	Ch	36	*Detroit*
Don Milton Daron	AE	58	*Ann Arbor*
Leo Harvey Darrow, A.B.	E	206	*Ann Arbor*
Raymond Cornwell Darrow	E	115	*Ann Arbor*
Wirt Edward Darrow	E	131	*Ann Arbor*
Kenneth Allen Daugherty	E	10	*Lorain, O.*
Ward Follett Davidson		10	*Iron Mountain*
William Andrew Davidson		18	*Saint Thomas, Ont.*
Donald Derby Davis	C	34	*Kewanee, Mo.*
Dwight Arlington Davis	C	84	*Vermontville*
†Edward Nathaniel Davis, *a*		4	*Toledo, O.*
Harris Eli Davis			*Anna, Ill.*
John Milton Davis	AE	24	*Red Oak, Ia.*
Charles Newman Dawe	Ch	89	*Ann Arbor*
Orley Hanson Dawson	M	72	*Muskegon*
Rodney Lamey DeLange	M	34	*Denver, Colo.*
Ralph Arthur DeLine	C	96	*Clayton*
Paul Samuel Denning	E	32	*Benton Harbor*
Ford Cornelius Densmore	C	16	*Bellaire*
Harlan Armstrong Depew			*Ann Arbor*
Albert George Dersch	Ch	48	*Cadillac*
Alonzo Benjamin DeSpelder			*Zeeland*
George Rankin Dewey	C	111	*Shelby*
James Harvey Dewey			*Benton Harbor*
Edward Adrian DeWindt		17	*Grand Rapids*
Ralph Burbank Dibble			*Ann Arbor*
William Ewell Dick	M	36	*Washington, D. C.*
Alfred Osmond Dicker	E	49	*Chicago, Ill.*
Hubert Fayette Dickey		16	*Spearfish, S. Dak.*
Silas Harold Dickinson	AE	37	*Fennville*
Horace Philip Dix	M	53	*Grand Rapids*
James Pruit Dixon			*Benton Harbor*
†David Stanton Dobson, *a*		4	*Canastota, N. Y.*
Bert E. Dodge	C	59	*Benton, Kans.*
Frank Earle Dodge	C	69	*Wichita, Kans.*
Charles William Doerr	C	36	*Saginaw*
Thomas Jeffrey Doran	C	36	*Washington, D. C.*
Raymond Edward Doty			*Amsterdam, N. Y.*
Lloyd Winnie Dows	Ch	43	*Howell, N. Y.*
Roy Franklin Doyle			*Albion*
Ernest Benjamin Drake	Ch	26	*Detroit*
George Lucas Dresser	C	102	*Port Huron*
John Alfred Driy	E	29	*Holland*
Arthur Karl Drueke			*Grand Rapids*
Walter Rhodes Drury			*Niles*
James Francis DuBuar			*Northville*
Bruce Eaton Dudley	C	26	*Armada*

Arthur John Duffey, A.B., *St. Johns College*	E	126	*Toledo, O.*
Fred Victor Dunlap	C	94	*Beaver Falls, Pa.*
George Ledlie Dunlap	C	47	*Medina, N. Y.*
Scott B. Dunlap	Ch	42	*Medina, N. Y.*
Ernest George Dunn, Jr.	C	20	*Michigan City, Ind.*
Richard Joseph Dunne	M	66	*Chicago, Ill.*
Joseph Edward Duquette	E	61	*Manistee*
William Dyer	C	115	*Argonia, Kans.*
James Paul Eaman		4	*Benton Harbor*
Harry McCullough Eason			*Detroit*
Louis Ralph Eastman	Ch	92	*Detroit*
Otto Elis Eckert	C	56	*Saginaw*
John William Eckhart, Jr.	M	36	*Chicago, Ill.*
Louis Malcolm Edgar	M	45	*Grosse Pointe*
Clinton Marsh Edwards			*Detroit*
Erwin Boyd Edwards	E	111	*Clarkson, N. Y.*
Howard Pierpont Edwards	C	91	*Ann Arbor*
Claude Emerson Eighmy	E	40	*Batavia, N. Y.*
Herman John Eisele	E	53	*Ann Arbor*
Arthur Louis Ellis		8	*Bay City*
George Warren Elspass	C	109	*Armada*
George Byron Emerson	M	68	*Ann Arbor*
Claude C. Emmons		4	*Ionia*
Walter Emmons	E	26	*Detroit*
Harry Eriksen	C	36	*Manistique*
John Stevenson Erskine	M	70	*Edgerton, Kans.*
Lewis Alden Estes	C	129	*Richmond, Ind.*
Clarence Thorne Evans		8	*Windsor, Ont.*
Ramiro Evans		4	*Empire*
Edward King Evatt	Mar	112	*Ann Arbor*
Erwin Eveleth, Jr.			*Corunna*
John Lathrop Ewing		4	*Chicago, Ill.*
William Leonard Eyke	C	114	*Muskegon*
William Sanders Fanning	A	60	*Detroit*
Harry Franklin Farrell	E	28	*Elk Rapids*
Albert Edward Fellers	C	32	*Harrietta*
Charles Albert Ferguson	E	65	*Wellsville, O.*
William McKay Ferguson	M	33	*Detroit*
Wilhelm Elbert Fermann	Mar	124	*Stoughton, Wis.*
Guillermo Fernandez	E	131	*Mexico, Mex.*
Lawrence North Field	M	30	*Mason*
Harry Seymour Finkenstaedt	M	33	*Bay City*
Arthur Kaye Fischer	C	52	*Chicago, Ill.*
Carl William Fischer			*Denver, Colo.*
Franz William Fischer	C	40	*Chicago, Ill.*
Harry Fisher			*Grand Rapids*
Robert Clarence Fisher	A	54	*Omaha, Neb.*

Leon Waterbury Fisk	C	120	*Newark, N. Y.*
Walton Charles Fiske			*Hornell, N. Y.*
Samuel Taylor FitzGerald	E	48	*Morrison, Ill.*
William Michael FitzGerald	M	85	*Detroit*
Reuben John Flaherty	C	75	*Detroit*
Eugene Allen Flanigan	C	88	*Fredonia, N. Y.*
Fred Glenn Fleming	Con	8	*Williamsport, Pa.*
Frank Barron Fletcher	M	111	*Little Rock, Ark.*
John Wilkinson Fletcher	E	104	*Centerville*
Philip Kingsbury Fletcher		14	*Detroit*
Lyman Russell Flook			*Dunkirk, N. Y.*
A. D. Flower	M	41	*Bellevue*
Henry Metcalf Fonda	M	43	*Rochester, N. Y.*
Allen Asa Foote	E	35	*Trumansburg, N. Y.*
Graham Merrill Foote, Jr.			*Long Beach, Cal.*
Charles Weeks Ford	M	29	*Fruitport*
Howard Wesley Ford	C	32	*Moorestown, N. J.*
Arthur M. Fournier	C	70	*Grayling*
Theodore Wilson Fowle	Ch	74	*Woburn, Mass.*
†Howard Stowell Fox, *a*	M	76	*Detroit*
Shelley Austin Foy			*Coldwater*
Harold Leigh Frackelton	C	61	*Fenton*
George Roy Francis	AE	28	*Cortland, N. Y.*
Harry Paul Franck		2	*Oak Harbor, O.*
Clyde Edward Frank	M	20	*Wayne*
Fred Adams French	Mar	20	*Norwalk, O.*
Otto Albert Freund	E	115	*Detroit*
Walter Frederic William Freund		2	*Detroit*
Arthur William Fries	AE	127	*South Bend, Ind.*
George Farnsworth Frink	C	64	*Oak Park, Ill.*
Allen Hugh Frost	M	62	*Buffalo, N. Y.*
Harry Elmer Frost	Ch	74	*Eaton Rapids*
Walter Albert Frost	C	64	*Bay City*
Kanaye Fujita	E	124	*Tokyo, Japan*
Harry LeRoy Fuller	Ch	66	*Pontiac*
Roscoe Marshall Gage	Ch	72	*Toledo, O.*
Martin Newton Gaines	Ch	70	*Kansas City, Mo.*
Paul Chester Gainey	E	12	*Cincinnati, O.*
Harold Edwin Gallup	AE	74	*Marshall*
Truman Alfred Gamon	Mar	115	*Wheaton, Ill.*
Jaswant Rai Gandhi	M	33	*Multan City, Punjab, India*
Joseph K. Gannett	C	115	*Wellington, O.*
John Warren Gard			*Auburn, N. Y.*
Daniel Dana Gardner	Mar	33	*Cherry Creek, N. Y.*
Harry Warner Gardner			*Traverse City*
Francis Ladislaus Garsztecki	AE	28	*Detroit*
Herbert Charles Gates	E	114	*Detroit*

William Frederick Gauss	E	122	*Ann Arbor*
Harry Myers George	Ch	76	*Cassopolis*
George Leo Gerard	C	58	*Holland Patent, N. Y.*
William Henry Gerhauser	Ch	84	*Detroit*
Frank Cornelius Gibbs			*Clarkston*
Giles Henry Gibson	Ch	43	*Saginaw*
James Ralph Gibson	C	82	*Northville*
William Charles Giffels	C	73	*Saint Johns*
John VanCampen Gilbert	Mar	63	*Bay City*
Lewis Burton Gilbertson	C	33	*Grand Rapids*
Merritt Erastus Gill	C	49	*Grand Rapids*
John Henry Gillooly			*Morral, O.*
Harvey Frank Girvin	M	98	*Buffalo, N. Y.*
George Lundy Glasgow	E	20	*Akron, O.*
†Clifford Conklin Glover, *p*		17	*Ann Arbor*
Frank Andrew Gniotowski	C	96	*Menominee*
Leslie Drew Goddard	C	113	*Ann Arbor*
Oscar Goetz	Ch	16	*Ann Arbor*
Ralph Joseph Golden	C	45	*Ogdensburg, N. Y.*
Louis Altman Goldenberg		4	*Detroit*
Morse Goldman	E	36	*Detroit*
John Philip Goldsberry			*Chillicothe, O.*
Robert Louis Gomon			*Pellston*
Howard Camburn Goodrich			*Grand Rapids*
Dean Jilbert Goodsole			*Hancock*
Lewis Paul Goodwin			*Rushville, Ill.*
Clay Winfred Gordon	E	124	*Fowlerville*
Rocco Joseph Gorman	C	103	*Saginaw*
Frederick William Graupner			*Ann Arbor*
Earle Pierce Gray	C	36	*Black River, N. Y.*
William Andrew Gray, Jr.	A	49	*Detroit*
William Burritt Gray		2	*Geneva, N. Y.*
Earl Delery Green	M	110	*Detroit*
Frank Algernon Green	E	54	*Big Rapids*
George Fuller Green	A	90	*Kansas City, Mo.*
James Raymond Green	C	65	*Rushville, N. Y.*
†Simpson William Green, *p*	E	25	*Detroit*
John Nicholas Greenaway	Ch	24	*Hanover, Pa.*
John M. Greene	C	63	*Escanaba*
Albert Frederick Greve	M	33	*Ann Arbor*
Ambrosio Aurelio Grillo		12	*Santiago, Cuba*
Charles Miller Grimes	M	112	*Ann Arbor*
Charles Pembroke Grimes	E	96	*Paw Paw*
John Ernest Grimes			*Durand*
Ebenezer Oliver Grosvenor	Ch	58	*Detroit*
William Arthur Grove			*Mishawaka, Ind.*
John Francis Guinan		4	*Boston, Mass.*
Carl Emil Gundlach	M	89	*Buffalo, N. Y.*

Ralph Douglas Gutchess	Ch	36	*Ann Arbor*
Elmer William Haack	M	32	*Birmingham*
John Wilson Hacker	Ch	87	*Kalamazoo*
Ralph Jacob Hahn	C	37	*Canton, O.*
Roscoe Conklin Hain	E	28	*Fremont*
Laurence Ivan Hale	C	92	*Lyons*
Vernon Halliday	Ch	57	*Clinton*
Homan FitzGreene Hallock	M	111	*Oberlin, O.*
Alexander Gordon Hamilton	M	31	*Washington, D. C.*
Donald Morrison Hamilton	Mar	10	*Benton Harbor*
Paul Shepard Hamilton	Ch	111	*Milwaukee, Wis.*
Robert Stevens Hammond	M	74	*Chicago, Ill.*
James Edwin Hancock			*Indianapolis, Ind.*
William Clyde Hanlon	C	29	*Cleveland, O.*
Edwin Sloan Hanna	Ch	37	*Detroit*
Clarence William Hannon	C	32	*Saginaw*
Alfred W. Hanson	Ch	124	*Racine, Wis.*
Howard Harding	M	44	*Henrietta, N. Y.*
Harold James Harrington			*Ann Arbor*
Leslie Maxwell Harris	M	80	*Fredonia, N. Y.*
Alexander Pratt Hart	E	51	*Boulder, Colo.*
Arthur Kline Hart			*Bay City*
Charles Ellett Hart	C	107	*Bay City*
William Alfred Hart			*Fredonia, N. Y.*
Emory Reid Hartsig			*Ann Arbor*
Theron Abbott Hartung		4	*Ann Arbor*
Harold Gifford Harvey		17	*Ypsilanti*
Harry Adelbert Harvey	M	35	*Niagara Falls, N. Y.*
Frank Devillow Haskins		12	*Cortland, N. Y.*
Harold Ira Haskins	C	90	*Chicago, Ill.*
Paul William Hass			*Niles*
John Byron Hatch	M	20	*Corunna*
Hubert Geary Hauser	C	49	*Grand Rapids*
Kent Converse Haven	M	28	*Bay City*
Frank S. Hawley	Ch	55	*Saint Louis, Mo.*
Daniel William Hayes	E	49	*Bay City*
Charles James Haynes	E	70	*Cadillac*
Herbert Goodrich Haynes	Mar	53	*Kensonville, N. Y.*
Philip Conrad Haynes	E	89	*Grenada, W. I.*
Wallace Sheldon Heald	E	32	*Sturgis*
Osmond Doré Heavenrich	M	97	*Detroit*
Alfred Kirk Hebner	M	59	*Hulburton, N. Y.*
Joseph Cornelius Hector			*Traverse City*
Howard Edward Heilman			*Perrysburg, O.*
Walter Edward Heimerdinger			*Menominee*
Theodore Charles Heinecke	M	65	*Merlebeach*
Carl Albert Helmecke	Mar	45	*Grand Rapids*
Floyd Harrison Helrigel			*Middleville*

Cornelius Langston Henderson	C	95	*Detroit*
Gus M. Hendleman	C	88	*Berrien Springs*
John Wesley Hendricks	C	80	*Philadelphia, Pa.*
Edwin Arnold Hendrickson	E	24	*Ironwood*
John Hendershott Henning	M	37	*Detroit*
Amandus Hermann		7	*Calumet*
Francis Ignatius Hetherington	C	45	*Detroit*
Herbert Spencer Hewitt	Mar	22	*Three Mile Bay, N. Y.*
Harold Leo Heyser			*Battle Creek*
Stephen Holman Heywood	M	20	*Jackson*
Charles Harold Hickey	C	23	*Passaic, N. J.*
Harold Osmond Hicks			*Grand Rapids*
Ralph Howard Hidey	C	102	*Mount Pleasant*
Elery Samuel Hildreth			*Freeland*
Frederick Alfred Hill, Jr.			*Austin, Ill.*
Lewis Clayton Hill	Mar	63	*Detroit*
Herbert T. Himmelein	Ch	32	*Saginaw*
Stacy Barcroft Hinks	C	114	*Alpena*
Kirke Keachie Hoagg			*Detroit*
George Hoffman	C	6	*Bergen, N. Y.*
Albert Wallace Hogeland	C	57	*Newtown, Pa.*
Norris Bernard Holbrook			*Onawa, Ia.*
Martin Aloysius Holland			*Woodville*
Arthur William Hollar	C	24	*Detroit*
Lawrence Scofield Holmboe		16	*Louisville, Ky.*
Clarence Ross Holmes	M	26	*Lansing*
Nils Edwin Holmes	C	33	*Grand Rapids*
William Ronne Holmes	M	26	*Jamestown, N. Y.*
William Leslie Holt			*Grand Rapids*
Ira Thomas Hook	C	33	*Elkridge, Md.*
Clair Goodyear Hoover			*Chelsea*
Howard Earl Hoover	M	41	*Chicago, Ill.*
Walter Scott Hopkin		14	*Almont*
Roy Cash Horine	Ch	24	*South Haven*
Louis Henry Hosbein, Jr.	M	30	*Saint Joseph*
Raymond Barclay Hosken	M	113	*Grand Rapids*
DeVerne Cary Houston	E	41	*Springfield, Mo.*
Walter John Howard	C	19	*Arcadia*
Arthur Kemp Howell	M	100	*New York, N. Y.*
Edward Murray Howell			*Detroit*
James Hoff Howell			*Ann Arbor*
William Ellis Howlett	AE	30	*Moline, Ill.*
Clarence Arthur Hubbard	AE	116	*Dunkirk, N. Y.*
Percy James Hubbard			*Dunkirk, N. Y.*
Clarence Paul Hucke	C	64	*Kansas City, Mo.*
Harry LeRoi Hudson			*Grand Rapids*
Lloyd Leigh Hughes			*Detroit*
Stanley Hughes			*Detroit*

Roberts Hulbert	Ch	102	*Birmingham*
Edwin Adams Hull	M	115	*Ann Arbor*
Cleaveland Muir Hunt	M	20	*Detroit*
Harold William Hunt			*Mount Clemens*
Louis Wood Hunt	Ch	25	*Detroit*
Russell Frederick Hunt	C	63	*Newberry*
Emmett Marshall Hunter	E	114	*Mart, Tex.*
Morton Rocha Hunter		4	*Chicago, Ill.*
Roger Simpson Hurd			*Wichita, Kans.*
William Bedford Francis Hurley	Ch	91	*Ann Arbor*
Ervin Richard Hurst			*Dowagiac*
William Blow Hutchinson		16	*Chippewa Falls, Wis.*
August Frederick Hutzel	M	71	*Ann Arbor*
Eric Francis Hyde	C	43	*Detroit*
Gustavus Adolphus Hyde	C	86	*Cleveland, O.*
Frank Rush Innes			*Port Huron*
Reade Mulkey Ireland		4	*Detroit*
†Glenn Allen Irvin, *a*			*Sinclairville, N. Y.*
Burleigh Edmund Jacobs	C	38	*Milwaukee, Wis.*
George Satterlee Jacobs	M	70	*Pontiac*
Clarence Herman Jaedecke	E	20	*Ishpeming*
Clifford Paul Jaedecke		6	*Ishpeming*
John Raymond James	C	69	*Chicago, Ill.*
Lawrence Hallock James	Ch	52	*Ypsilanti*
Andrew Douglas Jamieson	C	111	*Detroit*
Henry Mead Janes			*Detroit*
Allen Thurman Jeffery	M	119	*Albion*
Cyrus Chapman Jenks		8	*Buchanan*
Howard William Jennings		16	*Brockport, N. Y.*
Guy William Jensen	C	11	*Cheyenne, Wyo.*
John Brownlee Jewell			*Detroit*
Francis Arthur Jimerson	M	28	*Corning, N. Y.*
Charles Samuel Johnson	Ch	28	*Detroit*
Edwin Ray Johnson		8	*Ann Arbor*
Herbert Leroy Johnson	M	94	*Auburn, N. Y.*
Rex Johnson	Ch	96	*Ann Arbor*
Harry Karl Johnston	C	32	*Ann Arbor*
Paul Virginius Johnston	E	76	*Ann Arbor*
William Stanley Johnston	M	76	*Ann Arbor*
Albert Barnett Jones	C	120	*Clayville, N. Y.*
Clarence Edward Jones			*Washington, D. C.*
Harvey Paul Jones			*Sandwich, Ill.*
Sprague Jones	M	78	*Toledo, O.*
William Clark Jones	C	88	*Toledo, O.*
Carleton Ferdinand Julius		8	*Niles*
Herbert Charles Jussen	C	67	*Ironwood*
Carl Leopold Clarence Kah	E	24	*New Bremen, O.*

Howard Hewitt Kaneen	Ch	12	*Lorain, O.*
Charles Andrew Kanter, A.B., *Williams College*	Ch	101	*Detroit*
Leopold Joseph Kantzler (Katziantschitsch)	C	115	*Bay City*
Howard Smith Kayner	M	68	*Gasport, N. Y.*
*Floyd Harvey Keeler	C	117	*Frederick, S. Dak.*
Hugh Edward Keeler	E	66	*Ann Arbor*
Karl Wheeler Keil		24	*Grand Rapids*
Otto Clinton Keliher	M	65	*Sault Ste. Marie*
George William Kellogg	Ch	45	*Lawton*
Louis Stanley Hutchins Kemp			*Greenville*
Robert Marsh Kendall	AE	34	*Columbus, O.*
Robert Thrift Kendall			*Toledo, O.*
Jere Kenney Keogh		6	*Milwaukee, Wis.*
Fred Herbert Kern	M	85	*Port Huron*
Charles Joseph Kessler	M	32	*Sandusky, O.*
Ram Kishan Khosla	M	28	*Talwan, Punjab, India*
James Lloyd Kidd			*Ann Arbor*
Herman Guy Kiefer	Ch	66	*Detroit*
George Solon Kiehle	E	70	*Dansville, N. Y.*
Frank Burdette Kiel	C	45	*Lowell*
John Fred Kilbourne			*Ann Arbor*
Glenn Earle Killins			*Ann Arbor*
Andrew Lewis Kimball	M	79	*Detroit*
Charles Paul Kimche		8	*Detroit*
Edward Fredrick Kimmick			*Niles*
Ralph Steers Kingsbury	Ch	26	*Wayne*
Arthur Kingston	M	65	*Buffalo, N. Y.*
Grayson Thomas Kinney	M	46	*Coldwater*
Norman Kinney			*Atkins*
Paul Kirby	C	56	*Toledo, O.*
Walter Roland Kitson	Ch	29	*Ann Arbor*
Arthur Matthew Kivari			*Hancock*
Frank John Klauser	Ch	28	*Toledo, O.*
Fred Benjamin Klein	A	53	*Delphos, O.*
William Leonard Klewer	AE	22	*Chicago, Ill.*
Cyril Frederick Kleyn		17	*Calcutta, India*
Royce Gerald Kloeffler	E	32	*Armada*
Harry Farrar Knappenberger			*Macomb, Ill.*
Lewis Thayer Kniskern	C	119	*Hastings*
Philip Wheeler Kniskern	C	86	*Hastings*
James Henry Koehler	M	107	*Saginaw*
Benjamin Louis Koppin			*Detroit*
William Henry Kornacher	M	97	*Scranton, Pa.*
John Jacob Krauss			*Bellefontaine, O.*
Norman Krecke			*Detroit*

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*Deceased.

Bradford Shinkle Kreis	E	62	*Cincinnati, O.*
Arthur Reva Krellwitz			*Houghton*
Ernest Kremers	A	76	*Holland*
Edwin Krieghoff	AE	26	*Detroit*
Benjamin Kristal		4	*Newark, N. J.*
Eugen Kuebler	E	17	*Ann Arbor*
Herman Kenneth Kugel	M	60	*Sandusky, O.*
Arthur Henry Kuhn		2	*Chicago, Ill.*
Emil Kumbo	E	58	*Calumet*
Charles William Kynoch	M	36	*Saint Ignace*
John George Lahr			*Geneseo, N. Y.*
Cecil Ralph Lambert	M	40	*Detroit*
Charles Fitch Landsheft	Ch	100	*Buffalo, N. Y.*
James Leslie Lane	E	45	*Fowlerville*
Howard David Lapp	E	104	*Alexander, N. Y.*
Roy Brooks Lapp	M	20	*Buffalo, N. Y.*
Lawrence Aubuch Larsen	M	29	*Manistee*
Werner Reinhart Larson	M	20	*Ironwood*
Charles Ten Eyck Lathers	Ch	55	*Dearborn*
Irvie Eugene Lattimer	E	32	*Hubbardston*
Raymond Edward Lauer			*Monroe*
Harold Burrows Lawrence	E	35	*Decatur*
Sidney Smith Lawrence	Ch	29	*Coopersville*
Robert Wells Lazear	M	44	*Chicago, Ill.*
William James Learmonth	M	20	*Holyoke, Mass.*
Maurice Abram Lebensburger	E	28	*Sandusky, O.*
John Ernest Lebret	Mar	122	*Montclair, N. J.*
William McIlwaine Lee	E	37	*Detroit*
Benoit Leland Leger	E	82	*Washington, D. C.*
Eugene Freeman Leger	Ch	103	*Washington. D. C.*
Frank Gardner Legg, Jr.	C	98	*Coldwater*
Walter John Lehner	C	66	*Mount Clemens*
Luther John Leidig	E	70	*Steelton, Pa.*
Frank Joseph Lemper			*Attica, Ind.*
Walter Edward Lentz	A	69	*Detroit*
Delmar Samuel Lenzner	E	111	*Detroit*
Frank Louis Leonard			*Findlay, O.*
Louis Howell Leonard	M	53	*Syracuse, N. Y.*
Francis Thomas Letchfield	E	38	*Salt Lake City, Utah*
Joseph William Levenson			*Stapleton, N. Y.*
Alick Levinson	C	100	*Charlevoix*
Bryce Lewis	M	36	*Jamestown, N. Y.*
Hamilton Ward Lewis	C	64	*Westminster, Md.*
Abraham Linker	M	43	*Brooklyn, N. Y.*
Allen Clyde Lindsay	E	86	*Litchfield*
Frank Harman Linthicum	M	81	*Washington, D. C.*
Frederick Leo Liskow	C	105	*Saginaw*
Edwin Robert Little	M	47	*Norwalk, O.*

James John Livingston	C	69	*Menominee*
Seabourn Rome Livingstone	Mar	84	*Detroit*
Thomas W. Palmer Livingstone		6	*Detroit*
James Harry Lobban	E	74	*Atlas*
Albert Harry Lockwood	C	108	*Detroit*
Erwin Alton Lockwood	E	52	*Caro*
Lawrence William Long	E	64	*Jackson*
Royal Kerch Long	M	98	*Canton, O.*
Raymond Ernest Longden	E	54	*Chinkiang, China*
William Lester Loomis		4	*Waterbury, Conn.*
Thompson Lothrop	M	65	*Buffalo, N. Y.*
Arthur Caleb Loud	C	118	*Au Sable*
Frank Burton Lounsberry	Ch	25	*Bad Axe*
Francis Elston Lovelace	E	60	*Muskegon*
Ray Fisher Lovelee	E	40	*Fredonia, N. Y.*
Emile Reed Low	C	54	*Buffalo, N. Y.*
Lewis Albert Lowry		10	*Saint Louis*
Russel Vail Lucas		8	*Toledo, O.*
Fred William Lucht, Jr.			*Ann Arbor*
Ernest Carl Luebben			*Toledo, O.*
Alexander Nelson Lund	C	110	*Willard, N. Y.*
Charles Albert Lunn	Ch	54	*Marquette*
Eli Marion Lutz	E	34	*Circleville, O.*
Percival Grant MacArthur	Ch	10	*Detroit*
Russell Hudson McCarroll			*Detroit*
James Everingham MacChesney	C	123	*Toledo, O.*
Terrence Percival McClear	C	66	*Gregory*
John Lansford McCloud		4	*Detroit*
George McDonald McConkey	S		*Detroit*
Michael Paul McCormick	E	65	*Rexville, N. Y.*
Warren Albert McCracken			*Chicago, Ill.*
Cecil Charles McCreary		12	*Savona, N. Y.*
Harry Dale McCune	AE	27	*Leavenworth, Kans.*
Hugh Macdonald			*Ann Arbor*
Theodore Vernon McDonald	M	20	*Birmingham*
Edwin Alexander McDonell	E	119	*Detroit*
Keith McDougall	Mar	56	*Buffalo, N. Y.*
William McDowell	M	128	*Niagara Falls, N. Y.*
Andrew Frederic MacFarland			*Houston, Tex.*
Harry Maurice MacFarlane	M	82	*Detroit*
Harold Gilbert McGee			*Ann Arbor*
Stanley Ray McGillis			*Mount Pleasant*
Thomas Francis McGivney		4	*Howell*
Nelson Lawrence McGoun	M	73	*Kingsville, O.*
Howard Leadley McGregor	M	55	*Detroit*
John Alexander MacIver	C	122	*Sault Ste. Marie*
Edward Allen Mack	E	38	*Aurora, Ill.*
Clay Donnelly McKim	M	50	*Alpena*

Erwin Bruce McKinney	E	137	*Holly*
Donald Neil McKinnon	C	54	*Cheboygan*
William Rennie McKinnon	M	117	*Calumet*
Frank Lombard McLaughlin			*Elk Rapids*
Donald Joseph McLeod	C	24	*Rexton*
LeRoy Morgan MacLeod	AE	20	*Detroit*
Robert Keith McMaster	E	112	*Detroit*
Robert Raynolds McMath		8	*Detroit*
Angus Cornelius McMillan			*Bad Axe*
David Glover McMillan	AE	32	*Cortland, N. Y.*
Onie ElRoy McMullen			*Milan*
Fred James McNamara	E	108	*Howell*
Lawrence Ross McNamee	Ch	81	*Gary, Ind.*
Carl Edward Macomber	A	36	*Saginaw*
Lillian Pearl McOmber	AE	99	*Ann Arbor*
Warner Jay McRae	M	100	*Imlay City*
William Winebiddle McWilliams	M	20	*Pittsburg, Pa.*
Joseph Slossen Madden	E	22	*Michigan City, Ind.*
Delmont Charles Mafit		8	*Kalamazoo*
Joe Magidsohn	C	93	*Elkton*
Ralph Elbert Mahaney	C	114	*Owosso*
Walter Lee Main	Ch	64	*Midland*
George Edward Mamagona	M	24	*Kewadin*
John Lee Manby	C	137	*Battle Creek*
Robert Loren Manville	C	86	*Fairpoint, S. Dak.*
Bert Thomas March	Ch	106	*Ocheyedan, Ia.*
Fred Stuart Marker	E	108	*Detroit*
Harold Irving Mackey	M	71	*Saginaw*
Arthur Marowitz			*Omaha, Neb.*
John Marquezado	E	42	*Iquique, Chili, S. A.*
Ellis Thurston Marshall			*Horseheads, N. Y.*
William Davies Marshall			*Saint Johns*
Clarence Reynolds Martin	C	32	*Jamestown, N. Y.*
Clarence Verne Martin		8	*Toledo, O.*
Dorr Rice Martin	AE	81	*Charlotte*
Earl Victor Martin		17	*Detroit*
Eli Ernest Martin			*Mays, Ind.*
Thomas Adams Martin, B.S., *Ohio State University;* A.M., *Wesleyan University*	S		*Commercial Point, O.*
Julius Alva Martinek	E	28	*Traverse City*
Edgar Omar Marty	M	114	*Detroit*
George Walter Mason			*Valley City, N. Dak.*
Paul Napoleon Massie			*Bessemer*
Aaron Matheis	Mar	36	*Pittsburg, Pa.*
Clarence Leo Mathias		4	*Michigan City, Ind.*
Roy Edwin Mattern	C	73	*Muskogee, Okla.*
Walter Charles Frederick Maul	AE	34	*Detroit*

Irving Victor Maurer	C	81	*Saint Louis*
Ernest Christopher Maurice			*Cottingham Hall, Eng.*
Donald Curtis May	C	116	*Ann Arbor*
Henry William Meier	C	93	*Detroit*
Moore Meigs		2	*Detroit*
Henry Love Melton	C	84	*Dillon, Mont.*
William George Menery	C	105	*Yale*
Andrew Leroy Mennie	C	103	*Detroit*
Joseph Anthony Mertes	C	25	*Lake Linden*
Howard Howe Metcalf	M	24	*Battle Creek*
Clarence August Mette	E	69	*Hancock*
John Joseph Mette	A	112	*Hancock*
Norbert Mette	C	71	*Detroit*
Wendel John Meyer	Mar	86	*Cincinnati, O.*
Karl Henry Middendorf	M	51	*Akron, O.*
Raymond Thomas Middleton	C	28	*Washington, D. C.*
Harry Arthur Miles	C	25	*Detroit*
Walter Eastman Milestone	E	28	*Memphis, Tenn.*
Charles Milford Miley			*Niles*
Charles Christian Miller	C	29	*Northville*
Ernest Alfred Miller			*Traverse City*
Frank White Miller	C	40	*Ann Arbor*
James Joy Miller	C	76	*Detroit*
Norman Christian Miller	M	28	*Dunkirk, N. Y.*
Reeves Miller	E	45	*Springfield, Mo.*
William John Miller			*Centre Line*
Stanley Thompson Mills	C	63	*Ann Arbor*
William Macgregor Mills	Mar	28	*Hammond, N. Y.*
Harry Edward Miner	M	14	*Corunna*
John Rice Miner			*Ann Arbor*
Arthur Albert Misch	M	77	*Port Huron*
†Horace Wilson Mitchell, *a*			*Kansas City, Mo.*
Thomas Joseph Mitchell	C	29	*Grand Marais*
William Churchill Mitchell	C	72	*New York, N. Y.*
William Montgomery Mitchell	C	74	*Detroit*
Donald Plummer Molony	Mar	102	*Detroit*
George Justin Monfort	Ch	12	*Ithaca*
Raymond Joseph Monsen			*Mount Pleasant, Utah*
Walter Bernard Montgomery	M	53	*Chicago, Ill.*
George Edwin Moore		4	*Dearborn*
Harold Lyons Moore	Ch	32	*Grosse Ile*
Joseph Howard Moore		6	*Mount Clemens*
Ralph Thompson Moore		8	*Port Huron*
Albert Francis Morairty	E	66	*Denver, Colo.*
Francis Lyster Moran			*Detroit*
Frank Alvares Moreno			*Mexico City, Mex.*
Fred Morgan	E	34	*Benton Harbor*
Benjamin Franklin Morningstar	E	28	*Ann Arbor*

†George Crawford Morrill, *a*	C	32	*Big Rapids*
Arthur Herbert Morrison	C	35	*Portland, Me.*
Donald Gordon Morrison	C	32	*Wayne*
Joe Wood Morrison	AE	32	*Holly*
Marion Jakeway Morse	E	21	*Fosterville, Wis.*
Merritt Loomis Mosher	Mar	30	*Jackson*
Chester Mott	M	114	*Metamora*
Claude Elmer Mowrer		4	*Ypsilanti*
Dwight Hartman Muckley	Mar	22	*Kansas City, Mo.*
Royal Mudge	C	59	*Charlotte*
George Leonard Mueller			*Bay City*
John Mortimer Mulholland, Jr.	Mar	69	*Pittston, Pa.*
Bernard Joseph Mullen	C	29	*Carsonville*
Harold Leavitt Mumford		12	*Howard, S. Dak.*
Victor Leonard Munson			*North East, Pa.*
Edward Simon Murphy	E	107	*Bloomfield, N. Y.*
Floyd Blaine Murphy		8	*Tacoma, Wash.*
Timothy Murphy	C	17	*Arlington, N. J.*
Clair Arvin Myers	C	101	*Gobleville*
Isaac Neger	A	30	*Newark, N. J.*
Carl Edwin Nelson	C	60	*Bay City*
Carlton Lester Nelson	C	62	*Muskegon*
Frank Miller Nelson	C	24	*Chautauqua, N. Y.*
Harley Joseph Neusbaum			*Mishawaka, Ind.*
John Bishop Nicolls			*Leonidas*
Harrison Worth Nighswonger	C	25	*Alva, Okla.*
Wesley Marion Nighswonger	E	24	*Alva, Okla.*
Louis Clarence Nodell	Ch	73	*Coldwater*
J. William Nord	E	70	*Iron Mountain*
Walter Nord	M	22	*Champion*
Glenn Harrison Norquist	E	76	*Jamestown, N. Y.*
Abbott Lyman Norris	C	32	*Grand Rapids*
George Henry Norris	E	32	*Detroit*
Robert Norris	C	60	*Anna, Ill.*
James Ray Norton	E	28	*Salamanca, N. Y.*
Julian Stanislaus Nowakowski	C	111	*Detroit*
Edward Robert Nyland		8	*Holland*
John Arthur Nyland			*Grand Haven*
Dennis Michael O'Connor	E	63	*New Bedford, Mass.*
Gustavus Richard O'Connor	Mar	92	*Saint Clair*
Carl Ludwig Oelkers	C	55	*North Tonawanda, N. Y.*
Louis Augustus Offer	M	77	*Detroit*
Robert Ambler Officer			*Denver, Colo.*
Yasuro Oka	M	29	*Osaka, Japan*
Marquis Elwood Older	C	69	*Adrian*
Thomas Frederick Older	C	69	*Adrian*
Eri Olmstead	C	105	*Portland*

Clarence Leon Orcutt	M	68	*Holly, N. Y.*
Robert Allen Oren			*Sault Ste. Marie*
Fred Lloyd Orser	C	82	*Harvey, Ill.*
Frank Andrew Ortman	C	104	*Detroit*
Earl William Osgerby	Ch	106	*Vassar*
Manley Osgood	C	71	*Lima, O.*
Roy Herbert Osmun	Ch	75	*Holly*
Erwin James Otis			*Ann Arbor*
John Philip Otte	A	27	*Grand Rapids*
Herman G. Ottmer	E	52	*Ann Arbor*
Joseph Austin Otto			*Atlanta, N. Y.*
Albert Pabst, Jr.			*Youngstown, O.*
Harry William Pabst	M	32	*Youngstown, O.*
Frank Silas Packard, Jr.	C	120	*Sturgis*
Leon Jenkins Paddock		12	*Toledo, O.*
Clifford Emmet Paine	C	69	*Finnville*
Ray Burdette Palmer	E	66	*Norwich, N. Y.*
Russel Burr Palmer	C	59	*Saginaw*
Lloyd Willard Pardee	E	36	*Pontiac*
Ralph Hildreth Pardee	C	113	*Pontiac*
Edward Charles Pardon	M	58	*Ann Arbor*
Sidney Feild Parham		6	*Washington, D. C.*
Frank Avery Parks	M	72	*Youngstown, O.*
Lyle George Parrott	C	109	*Mount Clemens*
Dale Ivan Parshall	E	28	*Chesaning*
Cecil Dwight Parsons	C	84	*Fowlerville*
Harry Emmons Parsons	E	55	*Dowagiac*
Whitney Eustace Parsons			*Port Huron*
Donald Stanton Patterson	M	33	*Pontiac*
Samuel Delaware Patton			*Clarence, Ill.*
William Arsene Payne	C	87	*Akron, O.*
Bernie Calvin Pearce			*Traverse City*
Homer Ulysses Pearce	E	115	*Marquette*
Walter Willmoth Pearl	C	14	*Harbor Springs*
Fred Harrison Pearson	E	28	*Traverse City*
Edward Mitchell Pease	Con	16	*Washington, Pa.*
Fred Taylor Peck			*Grand Rapids*
James Rex Pemberton	C	103	*Ann Arbor*
Samuel Richards Penfield		8	*Northville*
Harold Marsh Penney		8	*Bradford, Pa.*
Charles Logan Penny		6	*Sault Ste. Marie*
Arthur Spencer Penoyer			*Saginaw*
Herbert John Penoyer			*Cheboygan*
Dulcidio de Souza Pereira	E	47	*Sao Paulo, Brazil, S. A.*
Harry Richardson Perkins	E	97	*Ann Arbor*
Allen Mason Perry	E	32	*Grand Rapids*
Joseph Francis Peters	C	8	*Lead, S. Dak.*

Carl Arthur Peterson	E	60	*Terraville, S. Dak.*
Vernon Herman Pfaender	C	33	*Toledo, O.*
Harold Bradley Phillips	E	75	*Port Huron*
Harold Balmer Pickering			*Seattle, Wash.*
Hugh Marion Pierce	E	117	*Ann Arbor*
James Bernard Pierce	C	109	*Butte, Mont.*
James Francis Pierce	C	86	*Elk Rapids*
Walter Alexander Pillans	C	101	*Owosso*
Walt Alfred Plumb	Ch	104	*Holly*
Robert Watkins Pollard		6	*Hot Springs, Ark.*
Hugh Minot Pomeroy		4	*Delevan, N. Y.*
Walter Clark Pomeroy	M	99	*Kalamazoo*
Walter Ernst Pommer	Mar	12	*Milwaukee, Wis.*
Charles Henry Poole	M	61	*Evanston, Ill.*
Earle Moore Porter	Mar	68	*Detroit*
Melvin Horace Porterfield			*Silver City, New Mex.*
Edward Joseph Posselius	E	112	*Detroit*
Ellis J. Potter	A	65	*Greenville*
Norman Hosmer Preble		8	*Chicago, Ill.*
Clyde Seamer Price		44	*Whitehall*
Bernard Prichard			*Buenos Aires, Argentine, S. A.*
Bruno Clarence Primeau	M	53	*Marquette*
Harold North Pulver			*Oswego, N. Y.*
†David Chandler Prince, *a*	C	43	*Springfield, Ill.*
George Frederic Pushaw		54	*Washington, D. C.*
Erle Trowbridge Putnam			*Ann Arbor*
John Milton M. Quaintance			*Petoskey*
Maurice James Quinn	C	105	*Saginaw*
Lewis Racoosin	Mar	117	*Detroit*
Robert Armstrong Radford	C	77	*Washington, D. C.*
Carl Frederick Raiss, Jr.	Ch	67	*Detroit*
Harry Bowars Ramage	C	54	*Magnolia, Ill.*
Juan Manuel Ramos	C	33	*Camaguey, Cuba*
Henry Wickes Randall	M	88	*Saginaw*
William Clifton Randall	AE	37	*Detroit*
Harry McCurdy Rankin	E	133	*Richland*
Roy Wilson Ranney	C	79	*Greenville*
Carl Raseman	AE	29	*Detroit*
Thomas Cosnett Rathbone		10	*Washington, D. C.*
Wallace Berry Ratliff			*Carlisle, Ky.*
Carl Frost Raver, M.D.	Ch	121	*Ann Arbor*
†Henry S. Rawdon, *a*	Ch		*Marlette*
George Alexander Ray	C	118	*Detroit*
Norman Gilman Ray	C	113	*Niagara Falls, N. Y.*
Edward Sumner Raynes	M	84	*Yarmouthville, Me.*
Joseph Thomas Reader	M	36	*Detroit*
Ellis Reed-Hill	Mar	32	*Detroit*

Harold Roland Reed	C	20	*Sault Ste. Marie*
Howard Clarence Reed	M	69	*Dunkirk, N. Y.*
Ralph Folsom Reed			*Three Rivers*
William Anthony Reed	M	76	*Detroit*
Russell James Reid	C	53	*Battle Creek*
Proctor DeKlerk Rensenhouse	E	32	*Three Rivers*
Edwin Wilbert Renz	C	68	*Philadelphia, Pa.*
Ruben Robert Reom	C	59	*Detroit*
Caesar Solari Revoredo	C		*Lima, Peru, S. A.*
Merritt Francis Rhodes	E	40	*La Grange, Ill.*
Ralph Govan Rhodes	C	17	*Metamora*
Norman J. Richards	E	63	*Cohoctah*
William Henry Richards	C	77	*Clifton Station, Va.*
Bayard Edwin Richardson			*Grand Rapids*
Harold Chamberlain Richardson	C	74	*Detroit*
John Warren Richardson			*Waterbury, Conn.*
Charles Edwin Rickershauser	C	37	*Los Angeles, Cal.*
Harrie Dean Riley	E	66	*Coldwater*
Arthur Christian Rissberger			*Butte, Mont.*
George Bernard Robbe	Ch	59	*Frenchlanding*
Joseph Haywood Roberts	Ch	104	*Saint Joseph, Mo.*
George Newell Robertson			*Sidney, O.*
Edward Hodges Robie	Ch	60	*Washington, D. C.*
†George Claire Robinson, *a*		8	*Wayne*
†George Cooper Robinson, *d*	C	10	*Muskegon*
Harold Arthur Robinson	M	112	*Coldwater*
Loren Thorne Robinson		8	*Detroit*
Wilber Irving Robinson	G	35	*Portland*
Fred Benjamin Rodgers		4	*Muskegon*
Charles Merwin Rodi	E	147	*Calumet*
Edward Roeser		23	*Rochester, N. Y.*
John Byron Rogers	C	70	*Ozark, Mo.*
John Ernest Rogers	Ch	58	*Ypsilanti*
Carl Edgar Rohde	C	115	*El Reno, Okla.*
George Sanders Rollin	C	120	*Ann Arbor*
Joseph Edward Rosatti	A	21	*Vulcan*
Karl Rose	E	77	*Pierre, S. Dak.*
Harold Rosenfield	M	36	*Detroit*
Marx Phillip Rosenthaler			*Detroit*
Ralph Lawrence Ross	M	55	*South Haven*
John Edward Roth	E	55	*Detroit*
Henry Abraham Rothschild			*Louisville, Ky.*
Frank Thompson Rowell	E	106	*Louisville, Ky.*
Robert Bennett Rowley	Ch	33	*Detroit*
J. D. Runkle			*Rawson, O.*
Claude Harrison Runyon			*Valley City, N. Dak.*
Axel Arnold Ruthstrom			*Hancock*
Paul Davis Ryan	E	53	*Medina, N. Y.*

Whiting John Ryan			*Munith*
Ray Carleton Sackett	C	87	*Saginaw*
Harry Joseph Saladin	Ch	32	*Detroit*
Luke Arnold Salsbury			*Dexter*
Ralph William Sanborn	C	30	*East Cleveland, O.*
Leigh Russell Sanford	Mar	122	*LaGrange, Ill.*
Carl William Sanzi			*Ann Arbor*
Saul Saulson	Mar	80	*Grand Marais*
John Saur, Jr.	M	113	*Grand Rapids*
Philip John Savage	E	44	*Detroit*
Fred Morgan Sawin	S	8	*Ann Arbor*
Ralph Thomas Sayles	Mar	144	*Flint*
Donald Thomas Sayre			*South Lyon*
Raymond George Schaffner			*Detroit*
Arthur Jay Schamehorn	C	96	*Jackson*
John Gallus Schaub	C	109	*Whiting, Ind.*
Samuel Schenkel	E	107	*Springville, N. Y.*
Cortlandt Whitehead Schepeler	C	32	*Ann Arbor*
William Theodore Schepeler			*Ann Arbor*
Irving John Scherer	M	131	*Benton Harbor*
Anton Augustus Schlichte	Ch	140	*Chicago, Ill.*
Elmer Stephen Schneider	C	39	*Detroit*
Francis Anthony Schneiders	E	79	*Detroit*
Stanley James Schooley			*Brisbane, Queensland, Australia*
Sidney Moses Schott	Ch	71	*Detroit*
Henry Louis Schreiber	C	18	*Michigan City, Ind.*
Francis Tolbert Schreiner	M	32	*Titusville, Pa.*
Frederic Adolph Schroeder		4	*Bay City*
Bruno Schroeter	M	76	*Detroit*
†Henry Berg Schuerman, *a*	E	21	*Carrollton, Ky.*
Walter Theodore Schuett	C	29	*Detroit*
Carl William Schumann	M	45	*Chicago, Ill.*
John Henry Schumann	E	33	*Wapakoneta, O.*
Harold Blake Schum	M	20	*Detroit*
Winthrop Ramsdell Scott	A	69	*Manistee*
Harold Ralph Sears	M	33	*Jackson*
Jay John Seaver	M	58	*Ypsilanti*
Carl Edward Seel			*Rochester, N. Y.*
Howard Paul Seelye	C	40	*Detroit*
Theodore Edward Seelye		6	*New Orleans, La.*
Harvey Neeb Seney	M	76	*Coldwater*
*Bert Victor Sewall			*Marion, Ind.*
Raymond Francis Shalek	C	59	*Chicago, Ill.*
Elmer William Shaver	M	31	*Bay City*
Charles Farquhar Shaw	E	93	*Dunedin, New Zealand*
Frank Thomas Shaw	C	79	*Redford*

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*Deceased.

†Vernon Charles Sheffield, *a*			*Chicago, Ill.*
Adolph Nathaniel Shelander	Mar	54	*Whitehall*
William Henry Shenk	Ch	82	*Medford, Mass.*
Harry Stevenson Sheppard	E	53	*Ann Arbor*
Fred Robert Sheridan			*Detroit*
†Marion Jay Sherwood, *a*			*Plainwell*
Jacob Wilbur Shively			*Mishawaka, Ind.*
Willis Gurdon Shumway	M	37	*Lowville, N. Y.*
Carl Jule Simon	E	46	*Van Wert, O.*
Louis John Simons		4	*Niagara Falls, N. Y.*
Thomas Burdick Simons, Jr.	M	61	*Detroit*
Leslie Alexander Simpson	C	68	*Otsego*
John Charles Sivers	E	64	*Berlin*
William Hemingway Skinner	C	119	*Baltimore, Md.*
Raymond Bernard Slack	M	20	*Medina, N. Y.*
Fred Stanley Slagle	C	75	*Washington Court House, O.*
Robert Kepler Slaymaker	M	35	*Detroit*
Reuben Benjamin Sleight	Mar	32	*Laingsburg*
John Perry Sloan			*Bluffton, O.*
Lawrence Eugene Sloan	C	66	*Ann Arbor*
Hubert Edward Sloman	M	34	*Detroit*
Morley Stern Sloman	M	32	*Coldwater*
Harrison Arthur Small	Ch	76	*Prairieville*
Glenn Worth Smiley	E	37	*Bangor*
Charles Mortimer Smith		23	*Lewiston, Mont.*
Clarence Gardner Smith		22	*Bay City*
Dean Louis Smith			*Detroit*
Ford Frank Smith	M	76	*Watervliet*
Leland Ward Smith	C	65	*Amsterdam, N. Y.*
Paul Harrison Smith	C	57	*Paw Paw*
Walton Spaulding Smith	M	39	*Evanston, Ill.*
Harry Alfred Snow	E	72	*Dearborn*
Shirley Clifford Snow	M	86	*Chicago, Ill.*
Jay Willard Snyder	M	68	*Battle Creek*
Jean Ernest Snyder	M	68	*Ann Arbor*
Arthur William SoRelle	E	110	*Clarendon, Tex.*
Wilson Jared Spangle		8	*Altoona, Pa.*
Cleon Perry Spangler	C	81	*Saginaw*
Bruce Sumner Spaulding			*Oswego, N. Y.*
Charles Gordon Spice	M	72	*Detroit*
Jacob Spiegel	C	36	*Atlantic Mine*
Ray LaMar Spitzley	M	68	*Detroit*
*William Carleton Spokes	M	40	*Ann Arbor*
Benjamin William Sprau	M	74	*Erie, Pa.*
Valentine Fisher Spring	E	28	*Hudson*

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*Deceased.

Carl Frederick Stahl	C	46	*Dillon, Mont.*
James Geddes Staley		8	*Battle Creek*
George Philip Alexander Stape		28	*Rochester, N. Y.*
Howard Reynolds Stearns	E	76	*Detroit*
Clement Caleb Steck	E	21	*Lorain, O.*
Frank Walter Steere	M	38	*Ann Arbor*
Harry Herman Steinhauser	C	51	*Rochester, N. Y.*
Lafayette F. Stephenson		4	*Toledo, O.*
Leigh James Stephenson	E	77	*Port Huron*
William Anderson Stephenson	M	12	*Findlay, O.*
Roe Belknap Stevens	M	84	*Whitmore Lake*
Herbert Augustus Stevenson	E	70	*Muskegon*
Elmer E. Stiff	Ch	83	*Fenton*
Roland Henry Stock	C	76	*Metamora*
Russell Lewis Stoddard			*Detroit*
Charles Edwin Stone	M	117	*Allegan*
Lawrence Dell Stratton	C	68	*Lapeer*
Godfrey Strelinger			*Detroit*
Frank Nichols Stringer			*Detroit*
Gari Melchers Stroh		12	*Detroit*
George Albert Strohmer			*Detroit*
Arthur Reid Stubbs		14	*Des Moines, Ia.*
Eliot William Studer	M	112	*Detroit*
Otto Fred Stuefer	E	14	*West Point, Neb.*
Henry William Sullivan			*Grand Rapids*
Raymond Henry Sullivan	C	131	*Chicago, Ill.*
Park Noble Sutton			*Coldwater*
Roy Ellsworth Sutton	M	76	*Pontiac*
Roy Stanley Swinton	C	108	*Calumet*
Clarence Arthur Syverson			*Lead, S. Dak.*
Merl Taber			*Toledo, O.*
Charles Edward Tackels	C	35	*Detroit*
Russel E. Takken			*Holland*
Almon Vincent Taylor	E	115	*Flagstaff, Ariz.*
George Alfred Taylor	E	32	*Lucas*
Milo Jackson Taylor		26	*Ovid*
Seneca Vern Taylor	C	77	*Rochester*
Robert Mortimer Teele	C	64	*Grand Rapids*
Robert Hamilton Tennant			*Mount Clemens*
Morton Emery Thierwechter	E	54	*Oak Harbor, O.*
Clarence Walter Thomas			*Schoolcraft*
Clayton Charles Thomas	M	34	*Ann Arbor*
Laurence Hurd Thomas	E	93	*Caro*
Stanley Roof Thomas	E	30	*Ann Arbor*
Ira Baldy Thomson	C	64	*New York, N. Y.*
†John Carman Thornton, *a*	A	28	*Sturgis*
Hugh Hammond Thrall		4	*Big Rapids*
William John Tideman	E	43	*Menominee*

Charles Ralph Tiebout, A.B., *Olivet College*	C	111	*Ypsilanti*
William August Timm	E	32	*Bay City*
†Clarence Jerome Tinker, *a*	Ch	30	*Fenton*
Ralph Roger Tinkler	C	58	*Canton, O.*
Maxwell Cleveland Tobias	C	24	*Ann Arbor*
Harold Norman Todt			*Detroit*
John Anderson Baush Tompkins, Jr.		13	*Wauwatosa, Wis.*
Mayson White Torbet	Mar	75	*Harbor Springs*
Dana Hungerford Torrey	M	52	*Detroit*
Reuben Simkin Tour	Ch	112	*Pueblo, Colo.*
Albert Jelly Towar		4	*Detroit*
Benjamin Alvord Towar	C	88	*Detroit*
Herbert Charles Towle	C	32	*Mishawaka, Ind.*
Frank Eugene Town	M	42	*Jackson*
Guy Bradford Treat	C	73	*Adrian*
Walter Howell Triplett	C	103	*Macon*
Herbert Bagley Trix	M	36	*Detroit*
Alexander Linn Trout	Ch	144	*Ann Arbor*
Austin Tallant Tubbs			*Detroit*
Burt Edwin Tuck			*Coral*
Albert Charles Tucker	C	72	*Imlay City*
Earl Winfield Tucker	Ch	47	*Wyandotte*
Fred Allan Tucker	E	66	*Danville, Ill.*
Thomas J. Turk	M	132	*Pontiac*
Vernon Palmer Turnburke	C	94	*Washington, D. C.*
Edwin Newton Turner	M	32	*Jackson*
Waldo Collins Twitchell	M	66	*Las Vegas, New Mex.*
Don O. Tylee	M	115	*Youngstown, O.*
Frank Stuart Tyler	C	85	*Detroit*
Arthur William Uhl			*Detroit*
Edward Willson Upham		22	*Monroe*
Frank Sherman Upham	AE	139	*Ann Arbor*
Clair Upthegrove	Ch	26	*Central Lake*
Almon William Urch			*Fenton*
Raymond George Urch	M	35	*Fenton*
Augusto Valenzuela	Mar	93	*Bogotá, Colombia, S. A.*
José Valenzuela	Ch	40	*Gaugua, Pampanga, P. I.*
Carnot King Valiton			*Ann Arbor*
Frederick Schoelett Van Bergen	M	110	*Minneapolis, Minn.*
Adelbert Leo Vandenburg			*Coldwater*
Edward Wright Vanderfield	E	76	*Grand Rapids*
Nicholas vanderKieft			*Grant*
Rudolph Daniel VanDyke	C	33	*Lowell*
Theodore Casimir Emile van Manen	E	95	*The Hague, Holland*

Nathan Edward VanStone	AE	22	*Bridgeport, Conn.*
Nelson Louis Vantol	Mar	74	*Grand Haven*
Rutherford Van Vliet			*Grand Rapids*
Frank Pearce VanWye	C	73	*Warren, O.*
Wallace Edward Vass		8	*Cazaville, Quebec*
Cecil Bolmer Vaughan	M	41	*Chicago, Ill.*
Henry Frieze Vaughan		26	*Ann Arbor*
Charles Harvey Vaughn			*Springville, N. Y.*
Asa Augustus Vealey		11	*Wayne*
Charles Henry Vial	E	34	*La Grange, Ill.*
Harry Chester Vicary	AE	101	*Saginaw*
Edward Frank Vidro	E	108	*Grand Rapids*
Ivar Oscar vonZellen	C	60	*Skanee*
Alan Edwin Vosburg			*Kalamazoo*
Harrison Morton Wadsworth	M	48	*Saint Joseph*
Gerald John Wagner	E	111	*Grand Rapids*
Glenn Herbert Wagner	Ch	28	*Cattaraugus, N. Y.*
William Julius Wagner	M	107	*Grand Rapids*
Leslie Osgood Waite		8	*Menominee*
Karl Merrit Waldron	C	34	*Albion, N. Y.*
Albert Smalley William Walker	E	75	*Buffalo, N. Y.*
Alexander Edward Walker	Ch	130	*Detroit*
Allison Walker	M	80	*Imlay City*
Fred Mallett Walker	E	112	*Saint Ignace*
Howard Cora Walker	C	59	*Saint Ignace*
James Herbert Walker	M	83	*Detroit*
Watson Frank Walker	C	30	*Birmingham*
Frank Ernest Wall	AE	25	*Ann Arbor*
John Benjamin Wallace		23	*Negaunee*
Alphons Charles Wallick			*Detroit*
Daniel Charles Walser	C	111	*Detroit*
Herbert Edmund Walsh	E	25	*Ann Arbor*
Roy Elsen Ward	C	115	*Ann Arbor*
Albert Ellery Wardwell	AE	30	*Ann Arbor*
Theodore Oakland Warford			*Coldwater*
Roger LeBaron Waring			*Tecumseh*
Charles Fredericks Warrick	E	30	*Saginaw*
Alfred Warring			*Detroit*
Harold Orcutt Washburn	M	81	*Belding*
William Stephen Wasmund	C	120	*Detroit*
Zura Orthello Waters			*Coldwater*
Harry Henry Watkins	Ch	10	*Ann Arbor*
Theodore Alfred Weager	M	118	*Interlaken, N. Y.*
Frank Lloyd Weaver		8	*Washington, D. C.*
Jervis Bennett Webb	M	36	*Detroit*
Solon Wilhelm Webb	M	68	*Battle Creek*
Charles Roe Weeks	M	58	*Allegan*
James Rodney Weeks			*Quincy, Ill.*

William Bachrach Weil		4	*Minneapolis, Minn.*
Paul Weinlander	M	20	*Sebewaing*
Chester Asel Wells			*Holland Patent, N. Y.*
James Mark Wenley	G	29	*Glasgow, Scotland*
Eugene Hugo Wesener		14	*Saginaw*
Frank Clifford West	C	105	*Fredonia, N. Y.*
James Clements Wheat, B.S., (Prep. for Eng.)		145	*Ann Arbor*
Frank Gideon Wheeler	Ch	56	*Washington, D. C.*
Walter Calhoun Wheeler	Ch	51	*Cincinnatus, N. Y.*
Harry Lemon White	A	42	*Dowagiac*
Roy Albert White			*Central Lake*
Ray Belmont Whitman		16	*Pittsburg, Pa.*
Bert Ceylon Whitmore	E	115	*Charlotte*
Raymond Jesse Whitney	A	28	*Highland*
Edward Daniel Wholihan			*Jackson*
William Somers Wicker	C	96	*Lockport, N. Y.*
Gordon Frank Wickes			*Saint Johns*
Harvey Randall Wickes	M	42	*Saginaw*
Howard Charles Wickes			*Saint Johns*
Edward Wickes		6	*Saginaw*
Raymond Churchill Wickman	Mar	24	*Grand Haven*
Theodore William Widenmann, B.S. (M.E.)	C	154	*Saginaw*
Clark Anson Wilcox			*Hornell, N. Y.*
Edward Palmer Wilgus	C	28	*Buffalo, N. Y.*
Noel Bernhart Wilkens	C	32	*Nessen City*
Almadus De Grosse Wilkinson		12	*Troy, N. Y.*
Charles S. Williams	C	27	*Owosso*
Harold Beal Williams	M	104	*Ann Arbor*
John Tyler Williams		22	*Sturgis*
Guy Mowrey Williamson	AE	36	*Pendleton, Ind.*
Harold Barclay Williamson		12	*Detroit*
Walter Williard Willits	C	29	*Remus*
Arthur Lawrence Wilson	C	40	*Washington, Pa.*
Forrest Earl Wilson	E	115	*Caledonia*
George William Winslow	M	85	*Kalamazoo*
Harris Osborne Winslow	C	24	*Kalamazoo*
Atlee Miskler Wise	C	49	*New Berlin, O.*
†Otto Giles Wismer, *a*		8	*Bay City*
Louis Frederick Wocholz			*Albion*
Carl Edward Wolfstyn			*Port Huron*
Jick Gam Wong	C	67	*Portland, Me.*
Horace Marshall Woodward	M	76	*Coldwater*
John Andrew Woodward			*Leetonia, O.*
Marshall Pierce Woodward			*Coldwater*
John Lyman Woodworth			*Omaha, Neb.*
Frank Ferguson Wormwood			*Rockford, Ill.*

Glenn Elroy Worthington	C	110	*Basom, N. Y.*
Chester William Wright	C	63	*Niagara Falls, N. Y.*
Harold Lee Wright	C	58	*Holly*
Millard Melvin Wright	C	8	*Cortland, N. Y.*
Raab Benjamin Franklin Wuerfel	M	115	*Toledo, O.*
Chen Ko Philip Yao	S	65	*Hankow, China*
Arthur Wynn Yates	E	66	*Detroit*
Harold Vincent Yocum	M	24	*Jackson*
Joseph Daniel Yoder	Ch	65	*Wooster, O.*
George Frederick Young			*McKinley, Isle of Pines, W. I.*
George Richmond Young	C	54	*Oshkosh, Wis.*
Howard Fields Young	C	42	*Kalamazoo*
William Anton Yung	Ch	103	*Terre Haute, Ind.*
Edgar Balch Zabriskie	E	96	*Omaha, Neb.*
William Frederic Zabriskie	AE	122	*Detroit*
Donald Lewis Zeller			*Cassopolis*
Charles Martin Ziegler	C	41	*Saginaw*

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CARL J. WIGGERS, M.D.
HARRY N. COLE, A.B., B.S.
HENRY W. STILES, M.D.
MARSHALL L. CUSHMAN, M.D.
JAMES G. VAN ZWALUWENBURG, B.S., M.D.
GEORGE A. KAMPERMAN, M.D.
PLINN F. MORSE, M.D.
MARK MARSHALL, M.D.
PAUL A. SCHULE, A.B.

Demonstrators and Assistants

GEORGE SLOCUM, M.D.
CONRAD GEORG, Jr., A.B., M.D.
NEAL N. WOOD, M.D.
CAREY P. McCORD, A.B.
JAMES F. BREAKEY, M.D.
FREDERICK R. WALDRON, Ph.B., M.D.
JAMES G. CUMMING, M.D.
SOBEI IDE, M.D.
MATTHEW KOLLIG, A.B., M.D.
ROBERT G. MacKENZIE, A.B., M.D.
GEORGE M. KLINE, M.D.
HERBERT N. T. NICHOLS, A.B.
LYLE S. HILL, B.S.
WARREN E. FORSYTHE, Ph.C., B.S.
EDNA STEINHARDT, M.D.
CHARLES B. McGLUMPHY, Ph.C., M.D.
ALMUS A. HALE
WILLIAM F. KOCH, A.B.
ROSCOE G. LELAND, A.B., M.D.
ELLERY A. SCHMIDT
ALFRED E. ALLDER, M.D.
GEORGE B. ROTH, A.B., M.D.
THOMAS D. GORDON, M.D.
LUTHER F. WARREN, A.B., M.D.
GEORGE H. FOX, A.B., M.D.
LINDSAY W. BASKETT, A.B., M.D.
EVA RAWLINGS, M.D.
GLADYS E. TOPPING
FREDERICK H. BUSBY, A.B.
HARRY A. TASH, B.S.
PAUL B. WORK, A.B.
ROYAL S. BUZZELL, B.S.
FRANK L. HALEY, B.S., Ph.G.
FREDERICK M. LOOMIS, A.B.
CHARLES A. BEHRENS, B.S.
LYLE D. McMILLAN, A.B.

Special Lecturers

WALTER B. PILLSBURY, Ph.D.
EDMUND A. CHRISTIAN, A.B., M.D.
JAMES D. MUNSON, A.M., M.D.
ELIJAH M. HOUGHTON, Ph.C., M.D.
EARL H. CAMPBELL, M.D.
ALFRED I. NOBLE, M.D.

STUDENTS*

RESIDENT GRADUATES

NAME	RESIDENCE
Edward Franklin Bittner, M.D., *Eclectic Medical College, Cincinnati*	*Somerset, Pa.*
Sobei Idé, M.D., *Sai Sei College*	*Nagano, Minamisaku, Kawakemi, Japan*
Mary Simpson Palmer, M.D.	*Detroit*

FOURTH YEAR STUDENTS

NAME	RESIDENCE
James Howard Agnew, A.B., A.M.	*Allegheny, Pa.*
Spencer Van Barnum	*Benton Harbor*
Henry Shank Bartholomew	*Lansing*
Alfred Charles Beck	*Toledo, O.*
William Nathaniel Braley, A.B.	*Plainfield*
Olga Louise Bridgman, A.B.	*Jackson*
Alonzo Blaine Brower, A.B.	*Dayton, O.*
Hugo Otto Brown	*Kelley's Island, O.*
Abram David Burr, A.B.	*Charlotte, N. Y.*
Earl Ingram Carr	*Auburn, N. Y.*
Lloyd Hart Childs	*Adrian*
Randall Marvin Cooley	*Manchester*
Harold Davis Cornell	*Valparaiso, Ind.*
Stanley Cullen Cox, A.B.	*Holyoke, Mass.*
Howard Hasting Cummings	*Wellsville, N. Y.*
Leslie Higley Stark DeWitt	*Spring Lake*
Robert Livingston Dixon	*Ann Arbor*
John Ernest Dobson, A.B., *Albion College*	*Albion*
Charles Borromeo Dugan, Ph.B., *Brown University*, A.M., *ibid.*	*Brinckerhoff, N. Y.*
George Samuel Foden	*Ann Arbor*
Argo Montague Foster	*Marine City*
William Henry Gambill	*Marion, Ill.*
George Willfred Gannon, A.B.	*Ann Arbor*
Allan Mowry Giddings	*Augusta*
James Augustine Jewett Hall	*Detroit*
Robert Henry Haskell, A.B., *Columbia University*	*Portland, Me.*

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*A dagger (†) preceding a student's name signifies that he also pursued studies, for the whole or a part of the year, in another Department of the University, indicated by an italic letter following the name, to-wit: *g*, Graduate School; *a*, Department of Literature, Science, and the Arts; *e*, Department of Engineering; *l*, Department of Law; *p*, School of Pharmacy; *h*, Homœopathic Medical College; *d*, College of Dental Surgery. The letter following the name (without the dagger), indicates that the student is pursuing a combined course, leading to a degree in each of the two Departments.

Bert Eugene Hempstead, A.B., *Illinois Wesleyan University*	*Bloomington, Ill.*
William Henry Hillman	*Laporte, Ind.*
John Thomson Hodgen	*Saint Louis, Mo.*
John Tanner Holmes, A.B.	*Hudson*
Orrin Dean Hudnutt, A.B., *Albion College*	*Hanover*
Leslie Lorraine Hunter	*Beaver, Pa.*
Arnold Leon Jacoby, A.B.	*Downers Grove, Ill.*
Thomas Martin Joyce	*Missoula, Mont.*
Charles Koenigsberger	*Deadwood, S. Dak.*
Alfred LaBine	*Laurium*
George Michie Laning, A.B.	*Osaka, Japan*
Carl C. McClelland, A.B.	*Ann Arbor*
Rollo Eugene McCotter	*Hartford*
Robert Michael Martin	*Portland*
Thomas Matthews	*Calumet*
Frank Ludwig Moore	*Fremont, O.*
Rudolph Henry Nichols	*Chicago, Ill.*
Raymond Arthur Palmer	*Toledo, O.*
Max Minor Peet, A.B.	*Iosco*
Grover Cleveland Penberthy	*Houghton*
David Barringer Phillips, A.B., *Trinity College*	*Salisbury, N. C.*
Frank Elmer Reeder, Ph.B., *Lafayette College*	*New Bloomfield, Pa.*
Allan Livingston Richardson, A.B.	*Detroit*
Winfield Beck Shepherd	*Kalamazoo*
David Oscar Smith, A.B.	*Derby, Ia.*
Ferris Nicholas Smith, A.B.	*Pontiac*
William Earl Smith	*Manistee*
Robert Page Stark	*Ann Arbor*
Dayton Davis Stone	*Washington*
Elisha John Tamblyn	*Hancock*
George Rood Taylor	*Lapeer*
Richard Moreland Taylor	*Owensboro, Ky.*
William Miller Thorne, Ph.B., *Yale University*	*Summerville, S. C.*
Roy Arthur Townsend	*Leonard*
Claude Thomas Uren	*Lead, S. Dak.*
Hall Glesnor Van Vlack	*Perrysburg, N. Y.*
Earle LeGrand Ward	*Birmingham*
Hugh Harshall Ware, A.B., *Missouri Wesleyan College*	*Bozeman, Mont.*
Bruce Stevens Weaver	*Toledo, O.*
Gertrude Webster Welton, A.B., *Wellesley College*	*Ann Arbor*
Edwin Gordon Culberson Williams	*Danville, Ill.*

George Hancock Wilson, B.S., *Kentucky State College*	*Lexington, Ky.*
William Udney Wolcott	*Menominee*

THIRD YEAR STUDENTS

NAME	RESIDENCE
Harry Loren Arnold, A.B.	*Owosso*
Edward Murray Auer	*Irondequoit, N. Y.*
Howard Charles Ballenger	*Economy, Ind.*
Lee Willis Barry	*Owosso*
William Lemuel Benedict	*Springport, Ind.*
Francis Joseph Adolph Bennett	*Auburn, N. Y.*
William Oscar Benjamin	*Ann Arbor*
Carl Vincent Bovard	*Butte, Mont.*
Michael Frederick Brondstetter	*Mount Pleasant*
Grace Winniefried Burnett	*Brattleboro, Vt.*
Donald Archibald Cameron	*Traverse City*
Glenn Blish Carpenter	*Big Rapids*
Albert Edward Catherwood	*Bay City*
Harry Linford Cooper	*Niles*
Roy Henry Crissey, B.S., Ph.G., Ph.C., *Ohio Northern University*	*Adrian*
Fernando de Juan, Jr.	*San Juan, Porto Rico*
Ludwig Frank Derfus, A.B.	*Salem, O.*
Stuart Lloyd DeWitt	*Spring Lake*
William Harrison Dickson	*Ann Arbor*
James Casper Droste, Ph.B., *St. Jerome's College*	*Grand Rapids*
Bertram Foster Duckwall	*Aspinwall, Pa.*
Karl Coulson Eberly	*Perrysburg, O.*
Frank Nathaniel Evans	*Emerson, Ia.*
Harold Kniest Faber, A.B., *Harvard University*	*Detroit*
Placida Vera Gardner, A.B., *University of Southern California*	*Los Angeles, Cal.*
Don Morse Griswold	*Grand Rapids*
James Anthony Guilfoil	*Auburn, N. Y.*
Thomas Edward Hackett	*Dowagiac*
Elmer Howard Hanna	*Birmingham*
Don Vilrette Hargrave, A.B.	*Ann Arbor*
Thomas Francis Heatley	*Gregory*
Robert Gray Henderson	*Saint Johns*
Harry Galloway Herring, B.S., *Georgetown College*	*Georgetown, Ky.*
Leroy Wetmore Hull, A.B.	*Orchard Lake*
Charles John Jentgen	*Tiffin, O.*
Robert Gray Johnson, A.B.	*Kendallville, Ind.*
Floyd Harding Jones	*Elmira, N. Y.*

Edward Hayes Kelly	*Ironwood*
Harry Neal Kerns	*Hollister, Cal.*
George Walter Krahn	*South Kaukauna, Wis.*
Hector George Lareau	*Detroit*
Alvin Lorie	*Kansas City, Mo.*
Charles Ruben Lowe	*Ward, Idaho*
Edward Joseph Lynch	*Jackson*
Carey Pratt McCord, A.B., *Harvard University*	*Birmingham, Ala.*
James Andrew McQuillan	*Jackson*
Charles Clayton Middleton	*Savannah, Ga.*
Bodo Emanuel Miller	*Akron, O.*
Alfred B. Mills	*Portsmouth, O.*
Vernor Milo Moore, A.B.	*Freeport*
Ralph Richard Morrall	*Niles, O.*
Maurice Louis Murphy	*Providence, R. I.*
Arthur Stone Needles, A.B., *University of Colorado*	*Pueblo, Colo.*
James Casper Negley, Ph.B., *Westminster College*	*Ann Arbor*
Herbert Nathan Thomas Nichols	*Ann Arbor*
Frederick Ward Ninde, A.B.	*Ann Arbor*
Bertram Henry Olmstead, B.S., *Bucknell University*	*Emporium, Pa.*
Axel Alexander Pesonen	*Hancock*
Dana Cecil Post	*Benton Harbor*
Daniel Edgar Pugh, Jr., A.B.	*Elmira, N. Y.*
Augustus Glover Purvis, A.B.	*Charleston, S. C.*
Clement Edwin Reed	*Ann Arbor*
Edward Ranburn Ridley	*Seattle, Wash.*
Howard Clyde Rockwell	*Sayre, Pa.*
Minnie Mary Rohn	*Brighton*
James Cecil Samson	*Blenheim, Ont.*
Harry Burke Schmidt	*Niles*
Charles William Schoregge	*New Ulm, Minn.*
Harold Schwartz	*Three Rivers*
Ward F. Seeley, A.B.	*Mayville*
Richard Eugene Sinkey	*Cherokee, Ia.*
Glenn Taylor Soule	*Somerset, Ky.*
William Arthur Stoops	*Edgerton, O.*
Paul Jacob Stueber	*Lima, O.*
William Edward Sullivan	*Lima, O.*
Reuel James Tanquary, A.B.	*Saint Louis, Mo.*
Harry Arthur Tash, B.S., *Whitman College*	*Walla Walla, Wash.*
Floyd Earl Tefft	*Belmont, N. Y.*
Wilmer Everett Toney, A.B.	*Walton, Ind.*
Theodore Adolph Tosch	*Rogers City*

Perry C. Traver	*Detroit*
Peter Vermeulen	*Zeeland*
Jay Dykhuis Vyn	*Grand Haven*
Don Dickinson Weaver	*Charlotte*
Ralph Emerson Wiley	*Sullivan, Ill.*
Gordon Fay Willey, A.B.	*Ann Arbor*
Paul Bartholomew Work, A.B.	*Elkhart, Ind.*

SECOND YEAR STUDENTS

NAME	RESIDENCE
DeWitt Carter Adams	*Detroit*
James Harlan Anderson	*Manistee*
Lucy Honora Baker	*Charlotte, N. Y.*
Guillermo Hermogenez Barbosa	*San Juan, Porto Rico*
Maurice Daniel Barnette	*Potsdam, N. Y.*
John Joseph Barth	*Escanaba*
Rudolph Artilles Bartholomew, A.B.	*Valparaiso, Ind.*
Charles Llewelyn Baskin, A.B., *Cedarville College*	*Lowndisville, S. C.*
Julien Emil Benjamin, *a*	*Cincinnati, O.*
William Frederick Beyer	*Marquette*
Minerva Louise Moore Blair	*Springfield, Mass.*
Charles Edward Blankenhorn	*Ann Arbor*
John Edson Bolender	*Sparta*
Harvey Samuel Brodersen	*Michigan City, Ind.*
Frederick Joseph Burt	*Ann Arbor*
Florence Chadwick	*Taunton, Mass.*
Louis Ward Cheney, A.B., *Oberlin College*	*Grand Rapids*
Gordon McCall Clark, *a*	*Potsdam, N. Y.*
Lester Floyd Cleland	*Edwards, N. Y.*
Harrison Smith Collisi	*Three Rivers*
Charles Emmett Condon	*Cassopolis*
Fredric Lanton Conklin	*Schoolcraft*
Gladstone Conman Conlin	*Adrian*
Edwin Hodge Crabtree, A.B., *Occidental College*	*San Diego, Cal.*
Harold Leroy Crane	*Hot Springs, S. Dak.*
William Philip Edmunds	*Youngstown, O.*
Arthur William Fisher, Ph.D., *Cornell University*	*Pultneyville, N. Y.*
Jeremiah Charles Flynn	*Port Byron, N. Y.*
Owen Harrison Foringer	*Erie, Pa.*
Berrington A. Fuller	*Friendship, N. Y.*
John Milton Gambill	*Marion, Ill.*
Parker Blair Gamble	*Detroit*
Charles Lewis Gandy, *a*	*West Point, N. Y.*
Floyd Daniels Gillis	*Mitchell, S. Dak.*
Wirt Clarence Groom, *a*	*Auburn, N. Y.*

Alpheus Tisdale Hafford	*Albion*
Ernest Edward Hardy	*Kent, Wash.*
Seward Harris	*Lodi, N. Y.*
James Langston Henderson	*Detroit*
Lyle Steen Hill, B.S. (E.E.)	*Berlin Heights, O.*
Jenny Mabel Höiland	*Valley City, N. Dak.*
Wallace Edwin Hopkins	*Marion Center, Pa.*
Raymond Howe	*Battle Creek*
Walter Asabel Hoyt, *a*	*Ypsilanti*
George Russell Irving	*Dunkirk, N. Y.*
LeRoy Scott Isham	*Cleveland, O.*
Samuel Adams Jackson	*Ann Arbor*
Rudolph Dinker Joldersma	*Grand Rapids*
Arthur Curtis Jones	*Chinook, Mont.*
Martin Judy	*Bay City*
Dorothea Lee	*Bangor, Me.*
Harold Irving Lillie, *a*	*Grand Haven*
Cyrenius Bruce Lockwood	*Washington*
William John McCauley, B.S., *Whitworth College*	*Ellensburg, Wash.*
Roy Archie McGarry	*Traverse City*
Harry Hrand Migerdich Malejan, A.B.	*Ann Arbor*
Wyllys Anton Manthei	*Marquette*
Frank Augustus Mercer	*Pinckney*
Edward Geddes Minor	*Detroit*
Louis Edwin Moon	*Traverse City*
Frederick Morris Loomis, A.B.	*Grand Rapids.*
Ray Sells Morrish	*Flint*
George Florian Muehlig, *a*	*Ann Arbor*
James Egbert Oliver	*Steubenville, O.*
Dorsey Webster Patterson	*Elko, Nev.*
William Allder Perkins	*Ann Arbor*
Frank William Pfisterer	*New Ulm, Minn.*
Frank Leslie Pierce	*Ann Arbor*
Lyman Justin Pinney	*Big Rapids*
William Eugene Powell	*Mumford, N. Y.*
Homer Atkinson Ramsdell	*San Francisco, Cal.*
John Stephen Reardon	*Grand Rapids*
Carl William Robbins	*Derby, Vt.*
Jamie Winston Rogers	*Ozark, Mo.*
William John Rynearson	*Three Oaks*
L. J. Schermerhorn	*Greenville*
Karl McCormick Scott, *a*	*Connellsville, Pa.*
Mildred Alice Scott	*Oak Park, Ill.*
Charles George Sinclair	*Port Huron*
Abraham Skversky	*Superior, Wis.*
Blythe Rooks Sleeman	*Linden*
Charles Sidney Smith	*Dayton, O.*

Dennis Vincent Smith, A.B.	*Petoskey*
Milton Case Smith	*Mount Clemens*
Ralph B. Snyder	*Fulton*
Samuel McCoy Sproat	*Chillicothe, O.*
Irving Freiler Stein, *a*	*Chicago, Ill.*
Augustus Burns Stewart, *a*	*Chesaning*
Reinhardt Hermann Stieve	*South Haven*
Donald Lonson Stilwell	*Deadwood, S. Dak.*
John Hinchman Stokes, A.B.	*Washington, D. C.*
John Curvin Strayer, A.B., *Lebanon Valley College*	*Red Lion, Pa.*
Geraldine Louise Ignatia Sutherland	*Daniels Town, British Guiana, S. A.*
Walter McCreary Taylor, *a*	*Ovid*
David Thomas	*Lorain, O.*
Etta May Trewin	*Mishawaka, Ind.*
Alexander Loudin Turner, *a*	*Ravenna, O.*
John Joseph Walch	*Escanaba*
Otis Monro Walter	*Ann Arbor*
John Windiate Warren	*Clarkston*
Leonard Waterman, *a*	*Grand Rapids*
Carl Vernon Weller, A.B., *Albion College*	*Saint Johns*
John N. Wenger	*Caledonia*
Philip Douglas Werum	*Toledo, O.*
Wayne Franklyn Wheatldon	*Shedds, Ore.*
Jay Atwood Whitaker, A.B., *Morningside College*	*Sioux City, Ia.*
Herbert Wiggins	*Atlantic City, N. J.*
Harold Williams Wiley, *a*	*South Haven*
Frankwood Earl Williams, A.B., *University of Wisconsin, g*	*Orchard Lake*
Vernie Emma Woodward, *a*	*Meriden, Conn.*
Gordon Hurst Yeo	*Big Rapids*

FIRST YEAR STUDENTS

NAME	RESIDENCE
Albert Raney Anderson	*Hot Springs, S. Dak.*
Gordon Henry Bahlman, A.B., *Marietta College*	*Marietta, O.*
William Hutt Barnes, *a*	*Ann Arbor*
Richard F. Boonstra, *a*	*Zeeland*
Carroll Gideon Bull, B.S., *University of Nashville*	*Fountain City, Tenn.*
Timothy Cornelius Caddigan, *a*	*Johnson, N. Y.*
†Thomas Percival Clifford, A.B., *Detroit College, a*	*Detroit*
Daune Wesley Crankshaw, *a*	*Mayville*
Louis Robert Effler, A.B., *St. Johns University (Toledo)*	*Toledo, O.*

Warren Ellsworth Forsythe, B.S., *Oregon Agricultural College,* Ph.C.	*Enterprise, Ore.*
Joe Funderburgh, A.B., *Miami University*	*Dayton, O.*
Irving Waterloo Greene, *a*	*Richmond*
Virgil David Greer, *a*	*Mount Vernon, Ill.*
Charles Abram Groomes	*Whitmore Lake*
Harry Morgan Groomes	*Whitmore Lake*
Dana Arthur Hagedorn, *a*	*Lansing*
Howard Russell Hartman, *a*	*Toledo, O.*
John Harold Hay, *a*	*Erie, Pa.*
Don Welling Gerald Hill	*Charlotte*
Charles Stuart Kennedy, *a*	*Ann Arbor*
William Raymond McClure, A.B., *Park College*	*Benton Harbor*
Crawford Ward McCormick	*Mount Gilead, O.*
John Howard McEwan, *a*	*Sault Ste. Marie*
Reginald William McGeoch, *a*	*Bay City*
Francis Calvin McNeal, B.S., *Ohio Northern University*	*Bucyrus, O.*
Malcolm Yeaman Marshall, *a*	*Henderson, Ky.*
Alexander Morrison Martin	*Jenison*
Charles Gustavus Morris	*Ann Arbor*
Lloyd Melville Otis	*Hicksville, O.*
Glenn Dewey Ransom, A.B., *Albion College*	*Quincy*
Howard Raymond Rarig	*Catawissa, Pa.*
Heinrich Reye, *a*	*Lisenach, Germany*
George Welty Ridenour	*Hicksville, O.*
Frank Eugene Sayers, *a*	*Fisher, Ill.*
Henry Aloysius Schlink, *a*	*New Riegel, O.*
Johannes Siveke, *a*	*Toledo, O.*
Allison Burdett Toaz	*Grand Ledge*
Kenneth Tuttle, A.B., *Harvard University*	*Plattsburgh, N. Y.*
Henrietta Van de Erre	*Holland*
George Wallace, *a*	*Toledo, O.*
William Francis Walsh	*Auburn, N. Y.*
Paul Gerhardt Weisman, *a*	*Spokane, Wash.*
Jacob Sterling Wendel	*Sioux City, Ia.*
Henry Lee Wenner, Jr., *a*	*Tiffin, O.*
Alfred Clarence Wilhelm	*Traverse City*
Frank Norman Wilson, *a*	*Ann Arbor*
Carleton Ira Wood, *a*	*Amherst, O.*
Harry Benjamin Yoh	*Van Wert, O.*

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HORACE L. WILGUS, M.S.
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WILLIS G. STONER, A.B., LL.B.
RALPH W. AIGLER, LL.B.
ERNEST P. KUHL, A.M.

Special Lecturers

VICTOR C. VAUGHAN, PH.D., M.D., LL.D.
RICHARD HUDSON, A.M., LL.D.
JOHN B. CLAYBERG, LL.B.
HENRY H. SWAN, LL.D.
FRANK F. REED, A.B.
ALBERT H. WALKER, LL.B.
DALLAS BOUDEMAN, M.S.
EDWARD S. ROGERS, LL.B.
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Attendance

ACTING PRESIDENT H. B. HUTCHINS, PROFESSORS E. C. GODDARD, and V. H. LANE.

STUDENTS*

THIRD YEAR STUDENTS

NAME	RESIDENCE
William Leon Albert	*Ann Arbor*
Leland Justus Allen	*Grand Rapids*
William Cedric Anderson	*Calumet*
Ray Dudley Avery	*Bowling Green, O.*
Frank Ayres, A.B.	*Indianapolis, Ind.*
Joseph Jay Baer	*Uniontown, Pa.*
Alexander Benjamin Baker	*Phoenix, Ariz.*
Ralph Edward Bancroft	*Detroit*
Willard Johnson Banyon	*Benton Harbor*
Fahy Blymyer Baylor, Ph.B., *Iowa College*	*Thurman, Ia.*
Fred Arthur Behr	*Detroit*
Robert Wells Besse	*Lyndon, Ill.*
Arthur Henry C. Biesterfeld	*Elgin, Ill.*
Rollin Otis Bisbee, A.B.	*Bad Axe*
Samuel Frederick Block, A.B.	*Platteville, Wis.*
Walter Alfred Bonynge, Jr.	*Los Angeles, Cal.*
Clinton Dewitt Boyd, A.B., *Miami University*	*Mount Orab, O.*
Lloyd Clinton Boyer	*Burr Oak*
Harley Johnson Boyle	*Spokane, Wash.*
Ambrose Bradley	*New Freeport, Pa.*
Anderville Suggett Bradley, A.B., *Georgetown College*	*Georgetown, Ky.*
Carl Lee Brattin	*Ashley*
Carl Louis Brown	*Jackson*
Paul Rankin Brown	*Sharpsburg, Ky.*
John Francis Bryen	*Duquesne, Pa.*
Wilson James Burkhard	*Bliss, Idaho*
Clarence Karl Carlson	*Pen Yan, N. Y.*
Evert Marion Carver	*Michigan City, Ind.*

---

*A dagger (†) preceding a student's name signifies that he also pursued studies, for the whole or a part of the year, in another Department of the University, indicated by an italic letter following the name, to-wit: *g*, Graduate School; *a*, Department of Literature, Science, and the Arts; *e*, Department of Engineering; *m*, Department of Medicine and Surgery; *p*, School of Pharmacy; *h*, Homœopathic Medical College; *d*, College of Dental Surgery. The letter following the name (without the dagger) indicates that the student is pursuing a combined course, leading to a degree in each of the two Departments.

Leigh Crawford Caswell	*Menominee*
Watson Henry Caudill	*Morehead, Ky.*
Logan McKee Cheek, A.B., *Central University of Kentucky*	*Danville, Ky.*
Lloyd Torbert Chockley	*Arboles, Colo.*
Thomas Clancey, A.B.	*Ishpeming*
Alois Richmond Clarke	*Los Angeles, Cal.*
Charles Emil Combe, A.B., *McKendree College*	*Highland, Ill.*
Roy William Cook	*Leland, Ill.*
Frank Wellington Coolidge, Jr.	*Kenilworth, Ill.*
Bartlett Chamberlain Coss	*Cattaraugus, N. Y.*
Reuben Tom Covey, Jr.	*Pueblo, Colo.*
Edward Blackwell Cox	*Valley City, N. Dak.*
John Thrale Creighton, A.B.	*Springfield, Ill.*
Joseph Merle Crotser	*Traverse City*
Walter Ebenezer Daines	*South Frankfort*
Irving Karl Davidson	*Grand Rapids*
Arnold Nelson Davis	*Scottsville, N. Y.*
William Elias Davis	*Willard, Utah.*
John Stork Dayton	*Preston, Minn.*
Fred Louis Dean	*Hicksville, O.*
John Franklin Decker	*Bluffton, Ind.*
Earl Warren De Lano, A.B.	*Allegan*
George Eleazer Dixon	*Toledo, O.*
Ralph Westcott Doty, A.B.	*Ann Arbor*
Roy J. Dygert	*Fremont, Ind.*
Harold Strickland Eastman	*Grand Rapids*
Frank Johnston Eckels, Jr.	*Nevada, Ia.*
Glenn Morse Ely	*Fort Dodge, Ia.*
Rex Sampson Emerick	*South Milford, Ind.*
Collins Pearson Emerson, Jr.	*Vinton, Ia.*
John Otto Erickson	*Astoria, Ore.*
Irving LeRoy Evans	*Baltimore, Md.*
Martin Luther Fetta	*Richmond, Ind.*
Frank Daniel Foley	*Columbus, Ga.*
George Kenyon Foster, A.B., *Columbia University*	*Normal, Ill.*
Ethelbert Hazelton Fowler, A.B.	*Ann Arbor*
Rolla Meade Galloway	*Dayton, O.*
John Aloysius Galvin	*Rawlins, Wyo.*
Ceylon Edward Gates	*Frankfort*
Louis Robert Gates	*Rosedale, Kans.*
Glenn Carlton Gillespie	*Romeo*
Karl Blake Goddard	*Harvard, Ill.*
Lee Marion Gordon	*Ludington*
Nathan Beryl Gordon	*Findlay, O.*
Roscoe Mac Grable	*Logansport, Ind.*
James Edward Greene	*Saginaw*

Curtis Guernsey	*Fostoria, O.*
Verde Robert Hall	*Port Huron*
Clyde Harden	*Detroit*
Charles Reuben Hatch, A.B., *Huron College*	*Alpena, S. Dak.*
Jay Warren Hatch	*Marshall*
Charles Denison Hayt, Jr., A.B., *University of Colorado*	*Denver, Colo.*
John Charles Helms, Jr., B.S., *Carthage College*	*Grand Rapids*
Guy De Vere Henry, A.B.	*Alpena*
Theophilus Francis Henry	*Jackson*
William Irlington Hibbs	*Ottawa, Ill.*
Shelley Judson Higgins	*Burlington, Ia.*
James Monroe Hill	*Rockville, Ind.*
Thomas Trimble Hill	*Indiana, Pa.*
Charles Adelbert Hills	*Irving*
Ralph Smith Hirth	*Detroit*
Gustave Herman Hoelscher, A.B., *Earlham College*	*Richmond, Ind.*
Richard Jacob Honnold	*Kansas, Ill.*
James Albert Horton	*Youngstown, O.*
Beverly Winslow Howe, A.B., *University of Tennessee*	*Carrollton, Ky.*
Forrest L. Hubbard	*Baker City, Ore.*
Robert Thornley Hughes	*Indianapolis, Ind.*
Delbert Trigg Hulse, A.B., *Baker University*	*Oak Grove Mo.*
Clare Samuel Hunter	*Ypsilanti*
Earl Ostrander Immel	*Ann Arbor*
Harry Wayne Isenberg, A.B.	*Toledo, O.*
Glenn Watson Jackson, A.B.	*Gladstone*
Russell Boswell James	*Galion, O.*
Carey Runyon Johnson, Ph.B., *Kalamazoo College*	*Kalamazoo*
Christen Sophus Johnson	*Greenville*
Edwin Richard Johnson	*Alpena*
Lindsay Elbert Johnson, A.B., *Knoxville College*	*Detroit*
Harrison Jones, A.B., *University of Georgia*	*Atlanta, Ga.*
John Davis Jones, A.B., *University of Montana*	*Ovando, Mont.*
Max Kahn, A.B.	*Denver, Colo.*
Clarence Post Keck	*Fond du Lac, Wis.*
Frank Bateman Keefe	*Oshkosh, Wis.*
Chester Buchanan Kidd, A.B., *Geneva College*	*Beaver Falls, Pa.*
Alphonso Elmer Kief	*Murdock, Minn.*

Edward George Kirby	*Toledo, O.*
Karl Henry Kober	*Canon City, Colo.*
Arthur Adam Koscinski	*Detroit*
John Jacob Koski	*Ann Arbor*
Herman William Kothe	*Indianapolis, Ind.*
Laurence Edwin Langdon	*Pueblo, Colo.*
John Wilbur Lapham, A.B., *Kansas University*	*Chanute, Kans.*
James Mackendrie Lawrence	*Garden City, Kans.*
James Sweetser Lawshe	*Washington, D. C.*
Harlow Gaines Leavens	*Cambridge, Vt.*
Benedict Herman Lee, A.B., *Detroit College*	*Detroit*
James B. Linsday	*Litchfield*
Frank Albert Little	*Ann Arbor*
William J. Losinger	*Ann Arbor*
Lester Luther	*Cimarron, Kans.*
Neill Steere McCarthy	*Phoenix, Ariz.*
Thomas Verne McCluggage, A.B., *Fairmount College*	*Wichita, Kans.*
John Russell McDavid	*Hillsboro, Ill.*
Carl Hugh McLean, A.B.	*Lansing*
Frederick Hough MacRobert	*Gloucester, Mass.*
Claude J. Marshall	*Nashville*
Lafayette S. Mercer	*Fountain City, Ind.*
Charles George Miller, A.B., *Wabash College*	*Hammond, Ind.*
George Horace Miller	*Uniontown, Pa.*
Francis Blaine Mitchell	*Baker City, Ore.*
Charles Redman Moon	*Saint Anthony, Idaho*
Carl Downing Mosier	*Paw Paw*
Earl Wright Munshaw	*Grand Rapids*
Orel Jacob Myers	*Fort Recovery, O.*
Eugene D. Nash	*Bravo*
Leland Kendrick Neeves	*Evanston, Ill.*
Herbert Joseph Newman	*Detroit*
Denzil Noll	*Wymore, Neb.*
Alfred George Nowakoski	*Mount Carmel, Pa.*
Alexander Joseph O'Connor	*Louisville, Ky.*
Chester Palmer O'Hara	*Saint Joseph*
Thomas Lawrence O'Leary, A.B.	*Muskegon*
Frank James O'Neill	*Holyoke, Mass.*
Arthur Kenzaburo Ozawa	*Honolulu, Hawaii*
George Packard, Jr.	*Flushing*
Harry Lanphier Patton	*Springfield, Ill.*
Cecil Henry Phillips	*San Bernardino, Cal.*
Edward Milton Plunkett, A.B.	*Ann Arbor*
John Sherman Powell	*Decatur, Ind.*

Lewis Mortimer Powell, LL.B., *University of Southern California*	*Pasadena, Cal.*
Harmel Laurence Pratt	*Salt Lake City, Utah*
Edward John Prebis	*Chicago, Ill.*
Joseph Hilaire Primeau, Jr.	*Marquette*
Frank Garfield Pugsley, A.B., *Iowa State University*	*Toledo, Ia.*
Herbert Enoch Ramsey	*Hutchinson, Kans.*
Thomas Edward Ray	*Malad City, Idaho.*
Carl Martin Reisch	*Springfield, Ill.*
Dominic Francis Rendinell	*Youngstown, O.*
Donald Bushnell Reshore	*Dowagiac*
Samuel Henry Rhoads	*Altoona, Pa.*
Thomas James Riley	*Escanaba*
Custer Enoch Ross	*Silverton, Ore.*
Charles Hickey Ruttle, A.B.	*Bay City*
Dean Ernest Ryman	*Fitzgerald, Ga.*
Charles Earl Sabin	*La Junta, Colo.*
Michael Edward Sargent	*Cheboygan*
Alexander Sayles	*Yale*
Herman Andrew Schafer	*Bridgeport, O.*
Frederick Hirsheal Schmidt, A.B., *Yale University*	*Le Mars, Ia.*
Shelby Brewer Schurtz, A.B.	*Grand Rapids*
Charles Benjamin Scott	*Thetford, Vt.*
John Clarence Shaffer	*Gladwin*
Harry Paul Sharavsky	*Steelton. Pa.*
Donald Bruce Sharpe	*West Branch*
Elwyn Riley Shaw	*Lyndon, Ill.*
Wilbert Eugene Short	*Goodrich*
Richard Evret Simmonds, Jr., B.S., *Lebanon College*, A.B., *ibid.*	*Miami, O.*
Charles A. Smith	*Detroit*
Buell Helmick Snyder	*Danville, Ill.*
Clark Henry Webster Snyder, Ph.B., *Bucknell University*	*Bloomsburg, Pa.*
Walter Leone Spaulding, B.S., *Pacific College*	*Newberg, Ore.*
Ira C. Sprague	*Blue Mound, Ill.*
Raymond Wesley Starr	*Harbor Springs*
Homer Sherman Stephens, A.B., *University of Nebraska*	*Sidney, Ia.*
Robert Franklin Stewart	*Webb City, Mo.*
Thomas Jefferson Straub	*Independence, Kans.*
Edward Reed Swentzel	*Kansas City, Mo.*
Henry Chester Taft, A.B.	*Ann Arbor*
Myles Potter Tallmadge	*Denver, Colo.*
Maurice Miles Thomas	*Medford, Okla.*
William Royal Thompson	*Hudson*

Robert Morrell Toms	*Chicago, Ill.*
Ebon Carl Tourje	*Cassopolis*
William Franklin Umphrey	*Yale*
Lynn Raymond Van Vlack	*Perrysburg, N. Y.*
James Robert Vaughan, Jr.	*Springfield, Mo.*
Raymond Colman Vaughan	*Saint Johns*
Raymond Visscher, A.B., *Hope College*, A.B.	*Holland*
Henry S. Walker, B.S., *Carthage College*	*Carthage, Ill.*
Ralph H. Walker	*Visalia, Cal.*
Grover Cleveland Wamsley	*Pocasset, Okla.*
Levi James Washburn	*Bangor*
Roe Duke Watson, A.B.	*Upper Alton, Ill.*
Sidney Smith Wattles	*Kalamazoo*
Mark Verne Weatherford, B.S., *Oregon Agricultural College*	*Olex, Ore.*
Earl Wellman	*Grand Rapids*
Clifford Walter Westerman	*Adrian*
Clarence Leroy Whealdon	*Plainview, Ore.*
Harry Harper Wilcoxen	*Wellsville, O.*
Harold Angelo Wilkins, B.S., *Oregon Agricultural College*	*Portland, Ore.*
Homer Hampton Williams	*Joplin, Mo.*
Samuel Raymond Williams, A.B.	*Lapeer*
Dockery Wilson, A.B., *University of Missouri*	*Bethany, Mo.*
Alpheus Amos Worcester	*Ann Arbor*
Arthur Fleming Hiles Wright, A.B.	*Waukegon, Ill.*
William Kosciusko Zewadski, Jr., B.S., *University of Florida*	*Ocala, Fla.*

SECOND YEAR STUDENTS

NAME	RESIDENCE
Arthur James Abbott, A.B.	*Ann Arbor*
Roy Jackson Adair	*Clayton, Ill.*
Clarence James Agnew, A.B.	*Stillman Valley, Ill.*
Maurice Everett Allen, S.B., *Massachusetts Institute of Technology*	*Toledo, O.*
John Ludwig Anderson	*Stevensville*
Carl William Andre	*Algoma, Wis.*
J. Arthur Andrus	*Hastings*
Thomas Henry Armstrong	*Wheatland, Pa.*
Leavitt DeCamp Averill	*Moline*
Leon Milburn Bailey, A.B.	*Fairbury, Neb.*
Edwin Laurence Baker, Jr., A.B.	*Adrian*
William Johnson Bane	*Waynsburg, Pa.*
Guy Leslie Barchus	*Ann Arbor*
Howard L. Barkdull, A.B.	*Toledo, O.*
Roy Irving Beale	*Rochester, N. Y.*

Neil Preston Beall	*Gallipolis, O.*
Charles Cleveland Becher, A.B.	*Brookville, O.*
Joseph Boris Beckenstein	*Detroit*
Benjamin Elwood Berg	*Columbus, Mont.*
Charles Pratt Berger	*Jackson*
Charles Wallace Bingham	*Mishawaka, Ind.*
Irwin Bloom	*Chicago, Ill.*
Allen McKee Bond, A.B., *Princeton University*	*Lawrenceburg, Ky.*
George Hudson Bookwalter	*Sodus*
Walter Myrle Bott	*Riverside, Cal.*
Bruce John Broady, A.B.	*Quincy, Ill.*
Rockwood Smith Brown	*Richford, Vt.*
Henry Alphonse Bundschu, A.B.	*Independence, Mo.*
Harry Flach Burkholder	*Ann Arbor*
Howard Hugh Campbell, A.B.	*Alpena*
Merle Glenn Campbell	*Portland, Ore.*
Burl Carr	*Leal, N. Dak.*
Sydney Buchanan Carragan, A.B., *Yale University*	*Flatbush, N. Y.*
Edmund Bigelow Chaffee, A.B.	*Ann Arbor*
Thomas Gavin Chambers, Jr.	*Oklahoma City, Okla.*
John Wayne Chapman	*Kearney, Neb.*
Leo M. Church	*Caro*
Will J. Clark, Jr.	*Harbor Springs*
Clarence Roe Clute	*Earlville, Ia.*
Isaac Stephen Coe, A.B.	*Centralia, Ill.*
Glenn Copple	*Centralia, Ill.*
Austin Marcus Cowan	*Parsons, Kans.*
Ralph Waldo Cowden	*Monmouth, Ill.*
Raymond McCague Crossman, B.S., *Bellevue College*	*Omaha, Neb.*
Charles Latimore Cunningham	*Pittsburg, Pa.*
James Henry Daly	*Long Beach, Cal.*
Joseph Abner Davis	*Sterling, Colo.*
Umbert Thomas DeMartini	*Portland, Ore.*
Francis Bernard DeVine	*Ann Arbor*
Alfred Liebert Devos, A.B.	*Milwaukee, Wis.*
Benjamin Harrison Dewey, A.B.	*Clyde, O.*
Edmund Charles Dickinson, A.B., *Earlham College*	*Richmond, Ind.*
Philip Sheridan Dickinson	*Detroit*
Raymond Gernerd Diefenderfer	*Conneaut, O.*
William Minton Donnelly, A.B., *Yale University*	*Detroit*
Eugene Gerald Donohoe	*O'Neill, Neb.*
Stanley Henry Drake	*Constantine*
Raymond K. Dykema	*Grand Rapids*
Benjamin Rudolph Eggeman, A.B.	*Detroit*

Clarence Ernest Eldridge, A.B.	*Niles*
Fred DeWitte Ensminger	*Danville, Ind.*
Elmer Ellsworth Erb, A.B., *Lebanon Valley College*	*Hockersville, Pa.*
George Newton Fake, A.B., *Hamilton College*	*Bonne Terre, Mo.*
Edward Campbell Farmer	*Muskegon*
Abe Feldman	*Eveleth, Minn.*
Walter Welty Ferris	*Hicksville, O.*
Benjamin Harrison Fisher	*Toledo, O.*
Beverly Augustus Foltz	*Waynsboro, Pa.*
Harry Clayton Fraser, A.B.	*Crystal Falls*
Jesse Wilford Frenz	*Baraboo, Wis.*
Marcus Leopold Freud, A.B.	*Detroit*
Samuel Friedman	*Akron, O.*
Otto Edward Fuelber	*Fort Wayne, Ind.*
Paul Victor Gadola	*Ann Arbor*
Jay Stephen Garman	*Tyrone, Pa.*
Leon Earl Garvin	*Ontonagon*
Edward Moss Gatliff	*Williamsburg, Ky.*
Herbert Everett Gernert	*Louisville, Ky.*
Walter Edward Glass	*Johnstown, Pa.*
Joseph Fletcher Goldsberry, A.B.	*Chillicothe, O.*
Carl Blackwood Grawn, A.B.	*Mount Pleasant*
Roy Edwin Green	*Whiting, Ind.*
Oliver Case Gregg	*Canandaigua, N. Y.*
Orville King Grimstad	*Brewster, Minn.*
William Frederick Haas, A.B.	*Braddock, Pa.*
Roy Herbert Hagerman	*Sturgis*
Gilbert Jackson Hainline	*Macomb, Ill.*
Ivor Ronald Halladay	*Battle Creek*
Leonard Walter Hamner	*Hutchinson, Kans.*
John Jacob Hansey, Jr.	*Ann Arbor*
Willard Blaine Hatch	*Marshall*
Arthur Richard Hemmy	*Juneau, Wis.*
Carl R. Henry	*Alpena*
John Oswald Herbold	*Buffalo, N. Y.*
Albert John Hetchler	*Linden*
LeRoy Vernon Hitchcock	*Santa Rosa, Cal.*
Rudolph Edward Hofelich	*Fremont, O.*
Roscoe Hopkins	*Ridgeway, Mo.*
Sumner Arnold Host	*Detroit*
Adair John Hotchkiss	*Hotchkiss, Colo.*
Michael Terrance Hughes	*Ann Arbor*
Rex Sherman Humphrey	*Ann Arbor*
David Eugene Hunt	*Granger, Minn.*
Ralph J. Hurlburt	*Portland, Ore.*
Adolf Fredrick Johnson	*Falconer, N. Y.*
Edward Jacob Kautz	*Georgetown, O.*

Cecil Edward Kell	*Centralia, Ill.*
Clarence Kellogg	*Trumansburg, N. Y.*
John Titus Kenny, A.B.	*Duluth, Minn.*
Frieda Kleinstück, A.B.	*Kalamazoo*
Edward Bernard Klewer	*Toledo, O.*
James Ray Klots	*Palouse, Wash.*
Emil Henry Koehl	*Saint Marys, O.*
Daniel Hirzel Kramer	*Terre Haute, Ind.*
Joseph Frederick Kropidlowski	*Ironwood*
Perry Arthur Kuhn, Jr.	*New Wilmington, Pa.*
Ralph Burdette Lacey, A.B.	*Ann Arbor*
Andrew Jackson Lang	*Kingston, N. Y.*
Oscar Robert Laraway	*Joliet, Ill.*
George Morrison Lawton	*Detroit*
Thomas Henry Leahy	*Canton, O.*
William Burnham Leavitt	*Newport, N. H.*
Arthur Eugene Leen	*Dayton, O.*
George Michael Lehman	*Ann Arbor*
George Verdine LeSage	*Butte, Mont.*
Thomas Hubert Lewis, Jr., A.B., *Western Maryland College*	*Westminster, Md.*
Charles Herbert Lillie	*Grand Rapids*
George Henry Lowe	*Willard, Utah.*
LeRoy Churchill Lyon	*London, Ont.*
Hugh Stanley McCall	*Portsmouth, O.*
Charles James McFadden	*Joliet, Ill.*
Earl Peregoy McGinnis	*Caldwell, O.*
Michael Brennan McHugh, A.B.	*Saginaw*
Ralph Porter Mackenzie, A.B., *Yale University*	*Lima, O.*
Charles Henry Mahoney, A.B., *Fisk University*	*Decatur*
Merritt Clark Mason	*Alva, Okla.*
Edgar John Matz	*Mount Clemens*
Lewis Frederick Mayhood	*Calgary, Alberta*
Charles Frederick Meyler	*Geneva, O.*
Harry Clendennon Miller, A.B.	*Lodi, O.*
Leon William Miller, A.B.	*Charlevoix*
Leon Floyd Miner, A.B.	*Owosso*
James Mitchell Modarelli	*Girard, O.*
Edwin Raymond Monnig	*Detroit*
William Wallace Montgomery	*Olympia, Wash.*
Charles John Mulcrone	*Saint Ignace*
Oscar Mumbaugh	*Youngstown, O.*
John Clyde Murray	*Vallejo, Cal.*
Richard Westfield Nebel	*Gladstone*
John Andrew Neelands	*Northville*
Clinton Jones Nelson, A.B.	*Alma*
Oscar Charles Nelson	*Helena, Mont.*

Robert Emmet Mark Nolan	*Birmingham, Ala.*
Ralph Mitchell Norrington	*Bay City*
Richard Loomis North	*Riverside, Cal.*
Victor Hugo Nysewander	*Leslie*
Stanley Rea Ostler	*Saginaw*
Ralph Mason Ostrander	*Painesville, O.*
Everett Clyde Parker	*Los Angeles, Cal.*
Francis Byron Parker	*Sioux Rapids, Ia.*
George Proctor Parker	*American Fork, Utah.*
John McAuliffe Parks	*Austinburg, O.*
Elbern Parsons	*Bancroft*
John Emory Parsons, Jr.	*Toledo, O.*
Orin Merle Peters	*Milwaukee, Wis.*
Spencer Arthur Phelps	*Faribault, Minn.*
Hugh Morehead Pinkerton	*Kansas City, Mo.*
William Paul Pinkerton	*Kansas City, Mo.*
Hugh Robert Porter, A.B.	*Calvin, N. Dak.*
Claude Lucius Post	*Washington Court House, O.*
Frederick Nicholas Prass	*Lafayette, Ind.*
John Storrs Prescott	*Muskegon*
John Hosie Price, A.B.	*Scranton, Pa.*
George LaVerne Rauch	*Ionia*
Robert Morrison Reid	*San Jose, Cal.*
Joel Stewart Rhinefort	*Lawton, Okla.*
Luke Caldwell Rhoads	*Clarksville, Ia.*
Thomas Nicholas Robinson	*South Haven*
McKee Robison, A.B.	*Ypsilanti*
Nils Altric Ruonavaara	*Calumet*
Verne V. Ryon	*Corning, N. Y.*
Clyde Clarke Sanders	*Elkhart, Ind.*
Meredith Phillips Sawyer	*Menominee*
Arthur Campbell Scates	*Dodge City, Kans.*
Reuben Albert Schmidt	*Sibley, Ill.*
William Richard Schneider	*Pilger, Neb.*
Arthur Schueler	*Detroit*
Lee James Scroggie	*Charlevoix*
William Stirling Seelye	*Eaton Rapids*
Rudolph Vogel Shakes, A.B.	*Plymouth, Ind.*
James Gifford Sheppard	*Fort Scott, Kans.*
Kate Sheppard	*Fort Scott, Kans.*
Delos Abiram Shiner, A.B.	*Alma*
Merrill Emanuel Silverstein	*Boyne City*
Joseph Bower Slack	*Chillicothe, Mo.*
Fred Joseph Slater, Ph.B., *University of Rochester*	*Charlotte, N. Y.*
Amor Paul Smith	*Osborne, O.*
Hiram Richard Smith, A.B.	*Pinckney*

John Joseph Smolenski	*Grand Rapids*
Earle Kezartee Stanton	*Sturgis*
Lyman Oliver Stewart, A.B., *Washburn College*	*Parsons, Kans.*
George Theodore Stine	*Gas City, Ind.*
William Henry Stokes	*Watertown, S. Dak.*
Henry Stevens Sweeny	*Darby, Pa.*
Chester Wallace Tackaberry	*Sanger, Cal.*
Elwyn Millo Tanner	*Flint*
Joseph Harry Taylor	*Ann Arbor*
Charles James Thielen, A.B., *Creighton University*	*Earling, Ia.*
Herbert LeRoy Thompson	*Ann Arbor*
Lindsay Levant Thompson	*North Yakima, Wash.*
Silas E. Thompson	*Warren, Ind.*
Austin Henry Trier	*Toledo, O.*
Daniel Robert Triplehorn	*Bluffton, O.*
Antona F. Tudeno	*Jerseyshore, Pa.*
Burton Alden Tyler	*San Jose, Ill.*
Don Vanderwerp, A.B.	*Fremont*
Chester Harrison VanWinkle, A.B., *Illinois College*	*Jacksonville, Ill.*
Alfred Julius Verheyen	*Butte, Mont.*
Harry Ellsworth Vernon	*Goshen, Ind.*
Pierre Archibald Vogel	*Saint Louis, Mo.*
Austin Thomas Walden, A.B., *Atlanta University*	*Fort Valley, Ga.*
Eugene Helm Walker	*Louisville, Ky.*
Wilfred Waltner	*Kansas City, Mo.*
Clarence Ernest Wampler, A.B.	*Webb City, Mo.*
James Keir Watkins, A.B.	*Bay City*
Robert Karl West, B.S., *Wooster University*	*Tiffin, O.*
Harris William Wienner	*New York, N. Y.*
Henry Raymond Wilkinson	*Belle Fourche, S. Dak.*
Roy Earle Willy	*Kimball, S. Dak.*
Paul Morton Wishon	*Stillwell, Ill.*
Harry Frederick Wittenbrink	*New Bremen, O.*
Harry Wellington Witters	*Saint Albans, Vt.*
Fred Sanborn Zick	*Polo, Ill.*

FIRST YEAR STUDENTS

NAME	RESIDENCE
Carl Henry Oscar Adam, *a*	*Indianapolis, Ind.*
Glenn Alcorn, A.B., *Iowa State University*	*Perry, Okla.*
Arthur Wright Allen	*Washingon, Ind.*
William Boardman Amberg	*Hickman, Ky.*
Frank Sears Anderson, *a*	*Lockport, N. Y.*

Harold Lansing Armstrong	*Terre Haute, Ind.*
Philip Ashford	*Canyon City, Ore.*
Horace Tracy Atkins	*Escanaba*
Grannis Bach, A.B., *Central University*	*Jackson, Ky.*
Myrn Albert Bailey	*Lansing*
†Theodore Mead Bailey, *a*	*Sioux Falls, S. Dak.*
Hollis Siebe Baker, *a*	*Allegan*
Arthur Louis Barkey	*Flint*
Hubert Thane Bauman	*Morenci*
Edward Thomas Beaumont	*Deerlodge, Mont.*
Jason Mark Been	*Burrows, Ind.*
William Adam Bertsch, *a*	*Indianapolis, Ind.*
Bertram Bruno Beshoar	*Trinidad, Colo.*
John Carroll Bierer	*Uniontown, Pa.*
Horace William Bigelow	*Owosso*
William Evans Bird	*Ironton, O.*
Alva Orville Bitner	*Mays, Ind.*
Joseph George Black, *a*	*Ann Arbor*
Steele Blake	*Boone, Ia.*
Charles Arthur Blass, B.S., *University of Pennsylvania*	*Erie, Pa.*
Roscoe Osmond Bonisteel	*Jackson*
William Forman Borders	*Nashville, Ill.*
Reel A. Boyd	*Houston, Tex.*
Adolph William Boyer	*Detroit*
Clarence Michael Boyle	*Tacoma, Wash.*
Ben Birchall Boynton, *a*	*Pleasant Plains, Ill.*
David Brodkey	*Omaha, Neb.*
Byron Martin Brogan	*Ironwood*
Robert Risdon Brown	*Pontiac*
Theodore Lewis Burkhart, B.S., *Ashland College*	*Wehrum, Pa.*
Bradley McKinley Burns	*Sewickley, Pa.*
Philip Harrison Cale, B.S., *Oregon Agricultural College*	*Albany, Ore.*
Wilbur Lee Campbell	*Belden, Neb.*
John Alexander Carruthers	*Colorado Springs, Colo.*
Howard Chancey Chillson	*Lansing*
John Roland Clark	*Clinton*
Melville Weston Clark	*Utica, Ill.*
Roscoe Junius Clarke	*Los Angeles, Cal.*
Gerald Francis Clifford	*Escanaba*
Harold Haseltine Clifford, *a*	*Baker City, Ore.*
Hyman Meyer Cohen	*East Chicago, Ind.*
David Hirsch Cohn	*Spokane, Wash.*
Wheaton Dudley Cole	*Oberlin, O.*
Raymond Driscoll Cooper	*Detroit*
George Washington Cox	*Rose, Kans.*

Charles Edward Cullen, A.M.	*Ann Arbor*
Wilbur Morrill Cunningham	*Benton Harbor*
Harold Redwood Curtis, A.B., *Brown University*	*Warwick, R. I.*
Arthur Davenport	*Plymouth, Pa.*
Sigmund Walker David, *a*	*Chicago, Ill.*
Elmer Francis Deer	*Sylvania, O.*
Arthur John de Lorimier	*San Diego, Cal.*
William George Desmond, A.B., *Geneva College*	*New Brighton, Pa.*
John James Devos, *a*	*Milwaukee, Wis.*
Albert Romulus Dilley, *a*	*Parkerville, Kans.*
Russell Tomlinson Dobson, Jr.	*Ann Arbor*
Jay L. Dodge	*Paw Paw*
William Preston Donald	*Seymour, Ia.*
Percy James Donovan	*Detroit*
John Major Dunham	*Alma*
Frederic Leib Du Relle	*Louisville, Ky.*
Hugh B. Eastburn, Jr., *a*	*Doylestown, Pa.*
Grover George Eisenmann	*Temperance*
Harold Allen Elliott	*Prescott, Ariz.*
Clarence Gilbert Elmer	*Lanark, Ill.*
Albert Avery Engle, Jr.	*Buffalo, N. Y.*
Joe Oscar Eppstein	*Toledo, O.*
William Morrison Ericksen	*Mount Pleasant, Utah*
David Jalmer Erickson	*Warren, Pa.*
Paul Edgar Erickson	*Eveleth, Minn.*
†Carl Vanstone Essery, *a*	*Ann Arbor*
Dean Swift Face	*Belding*
George Eddy Farmer, B.S., *Iowa State Agricultural College*	*Sioux Rapids, Ia.*
Paul Pond Farrens	*Clarinda, Ia.*
Merle Gilbert Faxon	*Sandwich, Ill.*
Carlisle Albert Ferguson, *a*	*Denver, Colo.*
Mark Royal Fisher	*Pontiac*
Clement Richard Flannigan	*Norway*
Newton Kennedy Fox, A.B., *Princeton University*	*Washington, D. C.*
Charles Beman Franklin, *a*	*Denver, Colo.*
Rock De Graw Frederick	*Sault Ste. Marie*
Raymond Hulitt Fryberger, *a*	*Noblesville, Ind.*
Harry Humphrey Fuller	*Belvidere, Ill.*
Hugh Gamble	*Yankton, S. Dak.*
Audley DeForest Gaston	*Meadville, Pa.*
Arthur Daniel Gatz	*Pittsburg, Pa.*
Paul Thomas Gaynor	*Toledo, O.*
Earle Nathaniel Genzberger	*Butte, Mont.*
Lester Robert Geyer	*Graham, Mo.*

Elmer Sheldon Gilman	*Eaton Rapids*
Charles Ellis Good, *a*	*Nahma*
Sanford Stewart Gooding	*Lockport, N. Y.*
John Alexander Gordon, *a*	*Battle Creek*
George Abraham Gore	*Nelson, B. C.*
Marshall King Gorham	*Mount Pleasant*
Gilbert Tucker Graham	*McGuire, Colo.*
Otto Adolf Graser	*Springfield, Ill.*
Francis Stewart Gray	*Blue Mound, Ill.*
Paul George Greer, *a*	*Kansas, City, Mo.*
Elmer Algor Gullberg	*Moline, Ill.*
Rex Edmund Hall	*Jefferson, Ia.*
John Charlton Hayes	*Clinton, Ia.*
Neal Mansfield Hebinger	*Bay City*
Hunt Coleman Hill	*Pontiac*
Frank Theodore Hinks	*Alpena*
Francis Frederick Hoelscher	*Chicago, Ill.*
Grant Sherman Holly	*Swink, Colo.*
John Perry Hones	*Ann Arbor*
Adrian Leslie Hoover	*Chicago, Ill.*
Wheeler Bennet Horner	*Pittsburg, Pa.*
Jack Wesley Howard	*Los Angeles, Cal.*
Raymond Edward Hoyt	*Redlands, Cal.*
George Magoffin Humphrey	*Saginaw*
Robert Lee Imler	*Woodbury, Pa.*
Emra DeWitt Jaqua	*Pierson*
Ernest Leo Jaqua	*Pierson*
Harry Burnell Jones, *a*	*North Yakima, Wash.*
Victor Rudolph Jose, Jr., *a*	*Indianapolis, Ind.*
Merrill Spencer June, A.B., *Middlebury College*	*Middlebury, Vt.*
Arthur Dewitt Kehoe	*Detroit*
Edward Ralph Kehoe	*Detroit*
Kenneth Burton Keith	*Saint Clair*
John Carrollton Kelley	*Butte, Mont.*
Ivin Earl Kerr	*Ora, Idaho*
James Robert Kirby	*Smith's Grove, Ky.*
Harry John Klingler	*Saint Clair*
Bernard Shippey Klise	*Petoskey*
William Andrew Kohler, A.B., *Pennsylvania College*	*Port Royal, Pa.*
Andrew Judson Kolyn, A.B., *Hope College*	*Grand Rapids*
Otto Henry Kreuzberger, A.B., *Canisius College*	*Logansport, Ind.*
Edward Francis Kruse	*Grand Rapids*
Daniel Joseph Kulaszewicz	*Bessemer*
Winthrop David Lane, *a*	*Fort Wayne, Ind.*

Langdon Hardy Larwill	*Adrian*
William Bickford Layton	*Butte, Mont.*
Reginald Genge Leitch	*Escanaba*
Thomas Israel Levitt	*Des Moines, Ia.*
William Ballard Long	*Indianapolis, Ind.*
Clifford Boles Longley	*Kalamazoo*
Morris Lubchansky	*New London, Conn.*
Dean Loree Lucking, *a*	*Detroit*
Allen Guy Ludington	*Detroit*
Lucien Earl Ludwig	*Delphos, O.*
Frederick William Lunger	*Davenport, Ia.*
Charles Thurston Luntz	*Canton, O.*
John David Lynch, *a*	*North Detroit*
†Gordon Allan MacBain, *a*	*McBain*
George Elmer McConley, Jr.	*Sterling, Colo.*
George Ezra McCracken, *a*	*Ann Arbor*
Lew McDonald	*Meriden, Ia.*
Gordon Oliver McGehee, B.S., *Alabama Polytechnic Institute*	*Montgomery, Ala.*
William Clinton McKee	*Indiana, Pa.*
Harold Orlando McLain, *a*	*Chicago, Ill.*
Maurice Hutchins McMahon	*Detroit*
Sherman Martin McNair	*Brookhaven, Miss.*
Rollin Lee McNitt	*Ann Arbor*
Elmer James McQuillan	*Jackson*
Glenn Ralph Madison	*Ann Arbor*
Victor Leland Mansfield	*Defiance, O.*
John Edmund Manthey	*Florence, Wis.*
Robert Doyle Markel	*Washington, Ind.*
Leonard Ferris Martin, B.S., *Carthage College*	*Carthage, Ill.*
Mellen Chamberlain Martin	*Ann Arbor*
Glenn Dale Mathews	*Portland*
Roy Beattie Maxey	*Carlyle, Ill.*
Earnest Earl May, B.S., *Fremont College*	*Hayes Center, Neb.*
Albert Edward Meder, *a*	*Bay City*
George Montcalm Melton	*Dillon, Mont.*
Paul Simon Messersmith	*Steelton, Pa.*
Walter Roy Metz, A.B., *Iowa College*	*Omaha, Neb.*
Elbert Castle Middleton	*Baudette, Minn.*
Charles E. Misner	*Otisville*
Frank Wilber Monroe	*Central City, Colo.*
Percy Loba Monteith	*Port Huron*
Harry Mortimer Morgan	*Cadillac*
Emery Joseph Munson	*Mendota, Ill.*
Clarence Wells Murch	*Butler, Ind.*
Francis James Murphy	*Flint*
Sigurd Geoffrey Nelson	*Ironwood*
Walter Morrow Nelson	*Albia, Ia.*

George Louis Neuhoff, Jr., *a*	*Saint Louis, Mo.*
Walter Freeman Nicholson	*Chicago, Ill.*
Sylvanus Roy Nigh	*North Baltimore, O.*
George Frederick Noisom, *a*	*South Bend, Ind.*
Charles A. North	*Bryant, Ind.*
Peter Quick Nyce	*Caldwell, Kans.*
James Thomas Opie	*Lake Linden*
Walter Seymour Palmer	*Grand Rapids*
James Parsons	*Dunkirk, N. Y.*
Edd Lewis Perkins	*Albuquerque, N. M.*
Noah Cushman Perkins, A.B., *Christian University*	*Austin, Tex.*
Samuel Persky	*New Haven, Conn.*
Frank Arthur Picard	*Saginaw*
Stanislaus Carl Pietraszewski	*Schenectady, N. Y.*
Frank Polutnik	*Belt, Mont.*
Leo Edward Prater	*Paw Paw*
Charles Shugart Pryor	*Nevada, Ia.*
Ovid Ancil Pulley	*Warren, Ind.*
John Shields Pyle, A.B., *Huron College*	*Huron, S. Dak.*
Fritz Loba Radford	*Detroit*
James Francis Ray	*East Syracuse, N. Y.*
Thomas Read	*Shelby*
Benjamin Harry Reck, *a*	*Mendota, Ill.*
Marion Folsom Reid	*Hurley, Wis.*
Robert Marion Riculfi	*Jacksonville, Fla.*
Roy Kenneth Roadruck	*Morocco, Ind.*
Clarence William Roberts, *a*	*Cassadaga, N. Y.*
Harold Leverne Rotzel, *a*	*Honeoye Falls, N. Y.*
Myer Christeller Rubin	*Hutchinson, Kans.*
Merle Ernest Rudy	*Dalton, O.*
Guy Blaine Sampson	*Adrian*
Gilbert Sanders	*Trinidad, Colo.*
Howard Woodin Sanders	*Seattle, Wash.*
Edmund Philip Sanford	*Pontiac*
Joseph Satterlee Sawyer	*Pontiac*
Harland Jay Scarborough, A.B., *Antioch College*	*Woodsfield, O.*
Hyman Abraham Schlissel	*Detroit*
William Herman Schroder	*Galesburg*
Harvey Davis Scott	*Ann Arbor*
Edlin Orville Secord	*Spokane, Wash.*
Frank Cornelius Seehorn	*Spokane, Wash.*
Henry G. Sellman, Jr., *a*	*Ann Arbor*
Clarence Nathaniel Sessions	*Muskegon*
Dan Seymour	*Boyne City*
Morrison Shafroth, *a*	*Denver, Colo.*
Kenneth Gladstone Silliman	*Cedar Falls, Ia.*
John Francis Sloan	*Morrisonville, Ill.*

Allen Thornton Smith	*Flint*
Glen Smith	*Pinckney*
Herbert Wilson Smith, *a*	*Toledo, O.*
Robert Douglas Snapp	*Joliet, Ill.*
Victor Samuel Snyder	*Connellsville, Pa*
Harold Dale Souter, *a*	*Shelby*
George Theodore Springer	*Gladstone*
Clarence Steinem	*Toledo, O.*
William Robinson Stewart	*Valley City, N. Dak.*
Howard Bond Strasburger	*Toledo, O.*
Taylor Strawn	*Ottawa, Ill.*
Harry Wilford Strock	*Dorset, O.*
Guy William Sullivan	*Escanaba*
†Charles Aloysius Taillon, *a*	*Fort Covington, N. Y.*
Carl Teetor	*Okeana, O.*
Robert Woodson Tharp	*Washington, Ind.*
Harold Smith Thomas, B.S., *Coe College*	*Cedar Rapids, Ia.*
Robert Sydney Thompson	*Franklin, Pa.*
Robert Story Tipping	*Englewood, N. J.*
Walter Kellogg Towers, *a*	*Paw Paw*
Newton A. Tracy	*Toledo, O.*
Harold Benjamin Trosper	*Bay City*
Chelsy Chalmers Utterback	*Ann Arbor*
William Percy Van Tuyle	*Clinton*
Dick Morrison Vesey	*Fort Wayne, Ind.*
George Warren Vorys	*Lancaster, O.*
John Joseph Walsh	*Greenland*
Harry Kerley Ward	*Granville, Ill.*
Leonard Alanson Ward	*Grand Rapids*
Emmet L. Whitford	*Manton*
Olin Sidney Whittemore	*Owosso*
Fred Louis Wilk, Jr.	*Chicago, Ill.*
Francis Lewis Williams	*Grand Rapids*
Robert Leslie Williams	*Springfield, Ill.*
James Russell Wilson	*Owensboro, Ky.*
Randall Wilson	*Bethany, Mo.*
Daniel Lester Winger	*Indiana, Pa.*
†Lorenzo Kenna Wood, *a*	*Princeton, Ky.*
Cleve Ross Wright	*Elko, Nev.*
Julius Jonothan Wuerthner	*Manchester*
Edwin Roy Zieger	*New Middletown, O.*
Blaine Abram Zuver	*Pittsburg, Pa.*

SPECIAL STUDENTS

NAME	RESIDENCE
Shirley Samuel Atkin	*Milford, Utah*
Alfred Bernhardt Backer	*Chicago, Ill.*
Charles Albert Bank	*Butte, Mont.*
Alfred Seymour Bates	*Trumansburg, N. Y.*

Charles Oscar Benting	*Pocatello, Idaho*
Nolan Boggs	*Toledo, O.*
Ross Milton Bonny	*Salt Lake City, Utah*
Charles Francis Bradfield	*LaHarpe, Ill.*
George Edward Brand	*Houghton*
George Joseph Callahan	*Mount Morris, N. Y.*
Edward Ralph Case	*Franklinville, N. Y.*
Charles Daniel Carey	*Chicago, Ill.*
Solen Bonney Clark	*Mackay, Idaho*
Roscoe Edison Collier	*Burlington, Ia.*
George LeRoy Collins	*Byron, N. Y.*
Daniel P. Connell	*Mount Carroll, Ill.*
Jesse Edward Crosby	*Holbrook, Ariz.*
Roy Gabriel Davis	*Canfield, O.*
Thomas Jefferson Davis	*Butte, Mont.*
Frank Stanislas Dombrowski	*Boyne Falls*
Martin Joseph Doyle	*Clio*
William Ward Duckett	*Ann Arbor*
Warren Joseph Duffey, A.M., *St. Johns University*	*Toledo, O.*
Walter Ray Dunn	*Memphis, Tenn.*
Ingo August Esch	*Chicago, Ill.*
John Faucher	*Hemlock*
Levi Henry Ferrier	*Ginter, Pa.*
James Jesse Ferris	*Saginaw*
†Robert Gauss, *a*	*Chicago, Ill.*
James Henry Gillard	*Ann Arbor*
Jacob Goldman	*Terre Haute, Ind.*
Millard Joseph Gore	*Kalama, Wash.*
Howard Griffith	*Pittsburg, Pa.*
Matthew Emerson Haggerty, A.B., *Bucknell University*	*Morris, Pa.*
Donald Hallahan	*Pomeroy, Ia.*
Joseph Augustus Hammill	*Bristol, R. I.*
Winfield Scott Hanna	*Luverne, Ia.*
John Franklin Heron	*Leadville, Colo.*
Richard Hill, Jr.	*Nashville, Tenn.*
James R. Hooper	*Victoria*
John Hopkins	*Hemlock*
Rollo Jerome Hough	*Oakland, Cal.*
Clarence Arlington Irwin	*Toledo, O.*
William Critchlow Jensen	*Salt Lake City, Utah*
George Doane Keller	*Omaha, Neb.*
George Henry Kraus	*Chicago, Ill.*
Benjamin Harrison Krause	*Grand Rapids*
John William LaPlont	*San Pedro, Cal.*
Henry Ronald MacGillis	*Harrisville*
John Martin McHale	*Escanaba*
Chris Maichele	*Middleville*

William Burkley Mann	*Marianna, Ark.*
Frank William Moffett	*Paxton, Ill.*
Daniel Francis Cook Moor	*Denver, Colo.*
Grover Lake Morden	*Saginaw*
John Seward Morrison	*Elkhart, Ind.*
Benjamin Frederick Mortenson	*Peoria, Ill.*
Meyer Morton	*Pine Grove*
Alfred Frank Myer	*Saginaw*
Charles William Olsen	*Portland, Ore.*
Albert Teller Orahood, A.B., *University of Colorado*	*Denver, Colo.*
William Lukens Paxson	*Dresher, Pa.*
George Thomas Porter	*Blue Island, Ill.*
Jeremiah Harrison Powell	*Richmond, Ky.*
Norman Washington Reed	*Toledo, O.*
Wesley Branch Rickey, B.L., *Ohio Wesleyan University*	*Delaware, O.*
Leslie Preston Scott	*Honolulu, Hawaii*
Lawrence Edward Scruggs	*Malden, Mo.*
Inman Sealby	*New York, N. Y.*
Summers Hedrick Sharp	*Marlinton, W. Va.*
Christian Braderson Skau	*Hartford, Conn.*
David Livingstone Soles	*McKeesport, Pa.*
Byron Garret Stewart	*Algonac*
William Kingsberry Stripling	*Fort Worth, Tex.*
Albino Zarate SyCip	*Amoy, China*
John Damer Thomas	*Evart*
George Campbell Thomson	*Cadillac*
Frank Lasley Tippett	*Chicago, Ill.*
George Frederick Wolff	*Chicago, Ill.*

The students named below, enrolled in the Department of Literature, Science, and the Arts, also pursued studies in the Department of Law, though not registered in the combined course:

NAME	RESIDENCE
Arthur William Bohnsack	*Chicago, Ill.*
Lyman Lloyd Bryson	*Omaha, Neb.*
Sten Ivar Carlson	*Crystal Falls*
Frank Elmer Connor	*Owosso*
Ralph Cook Craig	*Detroit*
Percy Vere Crowell	*Brattleboro, Vt.*
Kimball Fletcher	*Los Angeles, Cal.*
Clayton Force	*Grand Rapids*
Thomas Ambrose Gaynor	*Montague*
Charles Hubbard Hall	*Chicago, Ill.*
Clay Christopher Macdonald	*Detroit*
Harry Glenn Myser	*Canton, O.*
Daniel Westlake Parsons	*Shelby*
Ralph Benton Snively	*Lanark, Ill.*

Leon Steinberg	*Detroit*
Clyde Silas Stow	*Fowlerville*
Gordon Edwin Taylor	*Cincinnati, O.*
Verne Lafayette Tickner	*Ann Arbor*
Edward Joseph Walsh	*Denver, Colo.*
Harry LeVerne Ward	*Harvard*
Howard Fleetwood Wilson	*Buffalo, N. Y.*
Allen Fred Wood	*Ann Arbor*
William Ezra Worcester	*Thetford, Vt.*

The student named below, enrolled in the Department of Engineering, also pursued studies in the Department of Law:

NAME	RESIDENCE
James Clements Wheat, B.S. (Prep. for Eng.)	*Ann Arbor*

School of Pharmacy

FACULTY

HARRY B. HUTCHINS, LL.D., *Acting President*
OTIS C. JOHNSON, Ph.C., A.M.
WARREN P. LOMBARD, A.B., M.D.
FREDERICK G. NOVY, Sc.D., M.D.
EDWARD D. CAMPBELL, B.S.
MOSES GOMBERG, Sc.D.
JOHN O. REED, Ph.D.
CHARLES W. EDMUNDS, A.B., M.D.
S. LAWRENCE BIGELOW, Ph.D.
EDWARD H. KRAUS, Ph.D.
JULIUS O. SCHLOTTERBECK, Ph.C., Ph.D., *Dean*
ALVISO B. STEVENS, Ph.C., *Secretary*
WILLIAM J. HALE, Ph.D.
CALVIN H. KAUFFMAN, Ph.D.
KARL W. ZIMMERSCHIED, A.B., M.S.
LEE H. CONE, Ph.D.
ROBERT J. CARNEY, A.B.
L. DALE DORNEY, A.B.
FERN L. SHANNON, Ph.C.

Other Instructors and Assistants

GLENN B. BRITTON, M.S.
HERBERT A. HARD, B.S.
FLOYD E. BARTELL, A.M.
KENNETH W. TRACY, Ph.C.

STUDENTS*

UNDERGRADUATES

NAME	DEGREE	CREDIT	RESIDENCE
Harry Marsten Adams	B.S.	72	*Muskegon Heights*
†Peter Ambrose Alexander, *e*	S		*Iron Mountain*
Carapet Hambarsoom Asaturean	S		*Hamadan, Persia*
Guy Gibson Bailey	Ph.C.	30	*Mackinac Island*

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*The abbreviations in the column headed Degree indicate the degree for which the student is studying. Where instead the letter S is given, the student is pursuing miscellaneous studies without being registered as a candidate for a degree. The figures in the column headed Credit indicate the number of hours of work taken prior to the beginning of the current academic year, 1909-1910, and completed without conditions, or credited on advanced standing. By an hour of work is meant the equivalent of one exercise a week for one semester. A dagger (†) preceding a student's name signifies that he has pursued studies, for the whole or a part of the year, in another Department of the University, indicated by an italic letter following the name, to-wit: *a,* Department of Literature, Science, and the Arts; *e,* Department of Engineering; *m,* Department of Medicine and Surgery; *l,* Department of Law; *h,* Homœopathic Medical College; *d,* College of Dental Surgery.

James Walter Bertrand	S	38	*Houghton*
Roy Lee Blake	Ph.C.	31	*Albion, N. Y.*
Glenn Earl Bowles	Ph.C.		*Pontiac*
Ray Newton Brown	Ph.C.	18	*Norwich, N. Y.*
George Sherbourne Carpenter	Ph.C.	25	*Ionia*
Harry Raub Cary	Ph.C.	30	*Waverly, N. Y.*
Nancy Adelaide Childs	Ph.C.	52	*Sherman, N. Y.*
Francis Howell Colman	B.S.	92	*Kalamazoo*
Howard MacDowell Comstock	S		*Perrysburg, O.*
Jay J. Cook	S	16	*Iron Mountain*
Ernest R. Crandall	Ph.C.		*Petoskey*
Frank Crump	Ph.C.	30	*Smith's Grove, Ky.*
Austin Maurice Curtis	B.S.	16	*Washington, D. C.*
Nicholas Alfred Garfield Diggs	Ph.C.	26	*Detroit*
Morris Augustus Dodson, Ph.C.	B.S.	96	*Detroit*
Clifford L. Dougherty	Ph.C.		*Marengo, Ill.*
Edgar Otis Eaton	B.S.	62	*Bluffton, O.*
Harry Charles Eisenman	Ph.C.		*Monroe*
Benjamin Elgart	B.S.	39	*Colchester, Conn.*
Thomas George Finucan	Ph.C.		*Charlevoix*
Harry S. Fist	Ph.C.	32	*Pueblo, Colo.*
Arch Wooster Frame	B.S.	90	*Lestershire, N. Y.*
Frederick Clifford Freeman	S		*Paris, Ill.*
Hans Gesell	B.S.	50	*West Hoboken, N. Y.*
Theodore Thomas Gibson	S		*Ann Arbor*
†Clifford Conklin Glover, *e*	Ph.C.	25	*Ann Arbor*
Leo Warren Goodell	S	25	*Ann Arbor*
Luther James Graves	Ph.C.		*Burr Oak*
†Simpson William Green, *e*	B.S.	23	*Detroit*
Saul Greenbaum	B.S.	63	*Detroit*
Will Blaine Haan	S		*Holland*
Norma Cecile Hawley	Ph.C.	32	*Sherman, N. Y.*
Archibald Fred Hendee	Ph.C.	47	*Sloan, Ia.*
Merle Nolan Hodges	Ph.C.		*Dryden*
Edgar Lowell Holden	Ph.C.	21	*Proctor, Vt.*
John Carl Holdgraf	S		*Oak Harbor, O.*
George Carr Hollandsworth	B.S.	10	*Evanston, Ill.*
Burdette Francis Hubbard	Ph.C.		*Norwich, N. Y.*
Beatrice Etoile Huellmantel	Ph.C.	25	*Traverse City*
Pierre Cameron Hyde	Ph.C.	26	*Malone, N. Y.*
Frederick Fremont Ingram, Jr.	B.S.	59	*Detroit*
George Smith Jay	Ph.C.	82	*Shenandoah, Ia.*
Charles Bernard Jordan	B.S.	105	*Morrice*
Edgar William Kolath	Ph.C.		*Oak Harbor, O.*
Julius Kramer	B.S.	66	*Bay City*
Benjamin Earl Kuyers	Ph.C.	30	*Grand Rapids*

Russell Wilber Lally	Ph.C.	48	*Michigan City, Ind.*
Fleeta Alberta Lamb	B.S.	61	*Aspen, Colo.*
Ralph David Lamie	S	55	*Ann Arbor*
Ethan Edward Lauer	Ph.C.		*Rochester, N. Y.*
Raymond Albert Liggett	Ph.C.	18	*Peoria, Ill.*
William Hamilton Longstaff	Ph.C.	31	*Huron, S. Dak.*
Elva Beardsley McNeil	Ph.C.	48	*Ann Arbor*
Will John Mahlke	S		*Ann Arbor*
Leon Wade Martin	B.S.	25	*Plainwell*
Erle Thorington Maynard	Ph.C.	60	*Grand Rapids*
Fred William Misch	Ph.C.		*Port Huron*
Perry Matthias Nicholson	Ph.C.		*Erie, Pa.*
William Ray Nolan	S		*Livingston, Mont.*
Frank William O'Brien	B.S.	12	*Midland*
Harold Robert Oliver	Ph.C.	9	*Lowell*
Lloyd David Owens	Ph.C.	30	*Carson City*
George William Parfet	S		*Golden, Colo.*
Dart Henry Parr	Ph.C.	30	*Saint Johns*
Ernest J. Parr	Ph.C.	63	*Marion*
Angel Maria Pesquera	Ph.C.		*San Juan, Porto Rico*
Frank Eugene Pierce	Ph.C.	49	*Lorain, O.*
Roy Webster Pryer	B.S.	47	*Portland*
Louis Adam Samuel Rapin	B.S.	26	*Buffalo, N. Y.*
Roderick Alphonso Reeves	Ph.C.		*Saint Louis, Mo.*
Manuel Daniel Rojas, Ph.G., *St. Louis College of Pharmacy*	Ph.C.	29	*San José, Costa Rica*
Frank Markley Schad	Ph.C.		*Unionville*
Arthur Floyd Schlichting	Ph.C.	32	*Port Sanilac*
Carl Henry Schroeder	Ph.C.	9	*Rochester, Minn.*
James Leslie Shideler	Ph.C.		*Hamilton, O.*
Ernest Percival Simonds	Ph.C.	27	*Jacksonville, Fla.*
Grove Stevens	Ph.C.		*Corning, N. Y.*
Chester Albert Struby	Ph.C.	27	*Louisville, Ky.*
Leslie Earl Sweetland	Ph.C.		*Decatur*
Kenneth William Tracy, Ph.C.	B.S.	63	*Ashtabula, O.*
John Vanpell	Ph.C.		*Holland*
James Martin Westveld	Ph.C.		*Holland*
John Robert White, Jr.	Ph.C.	31	*Saint Paul, Minn.*
Ralph Pollock White	Ph.C.	34	*Youngstown, O.*
Vernor Webster Wilson	S		*Ann Arbor*
Arthur James Winters	Ph.C.	23	*Elk Rapids*
Eber Hugh Wisner	B.S.	86	*Ann Arbor*
Robert Adolph Wolf	S	20	*Detroit*
John Gray Woodman	Ph.C.	30	*Paw Paw*
Harry Ephraim Woodring	Ph.C.	21	*Corry, Pa.*
John Henry Wright	B.S.	108	*Ithaca, N. Y.*
Caroline Kate Wyllie	Ph.C.		*Hammond, N. Y.*
Jose Julian Zamora	Ph.C.	18	*Aguadilla, Porto Rico*

Homœopathic Medical College

FACULTY

HARRY B. HUTCHINS, LL.D., *Acting President*
WILBERT B. HINSDALE, M.S., A.M., M.D., *Dean*
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DEAN T. SMITH, B.S., M.D.
DEAN W. MYERS, M.D.
CLAUDE A. BURRETT, PH.B., M.D., *Registrar*
RALPH R. MELLON, B.S., M.D.

Assistants

ANSEL B. SMITH, M.D.
CORWIN S. CLARKE, M.D.
RALPH W. RIDGE, M.D.
WILLARD S. HASTINGS, M.D.

Non-Resident Lecturer

OSCAR R. LONG, M.D.

STUDENTS*

RESIDENT GRADUATES

NAME	RESIDENCE
Willard Seth Hastings, M.D.	*Corpus Christi, Tex.*
Ralph William Ridge, M.D.	*Beresford, S. Dak.*
Ansel Brooks Smith, M.D.	*Ann Arbor*

FOURTH YEAR STUDENTS

NAME	RESIDENCE
Estel Thornton Beck	*Flint*
Thomas Bell	*Jellico, Tenn.*
Floyd Hamilton Bussey	*Pontiac*
Frank John Colgan	*Pittsford, N. Y.*

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*A dagger (†) preceding a student's name signifies that he has pursued studies, for the year or a part of the year, in another Department of the University, indicated by an italic letter following the name, to-wit: *a*, Department of Literature, Science, and the Arts; *e*, Department of Engineering; *m*, Department of Medicine and Surgery; *l*, Department of Law; *p*, School of Pharmacy; *d*, College of Dental Surgery. The letter (without the dagger) indicates that the student is pursuing a combined course, leading to a degree in each of the two Departments.

Lawrence Love Dill, A.B., *Angola College*	*Angola, Ind.*
Zina Leslie Gilding	*Ann Arbor*
Roy Odell Knapp	*Petoskey*
Joseph Henry McCann	*Munith*
Edward Alexander Miller	*Pittsburg, Pa.*
Joseph Augustine O'Connor	*Rochester, N. Y.*
Harry Lawrence Parker	*Akron, N. Y.*
William Lewis Rhonehouse	*Maumee, O.*
Allen Donald Rowe	*Detroit*
Leo Frank Secrist	*Alpena*
Florence Aurthreholt Stone	*Jackson*
Walter Earl Watkins	*Sturgis*
Gilbert Henry Welch	*East Syracuse, N. Y.*

THIRD YEAR STUDENTS

NAME	RESIDENCE
John Harold Alexander	*Amherstburg, Ont.*
Dean Kirtley Armstrong	*Toledo, O.*
Fred Levi Arner	*Groveland, N. Y.*
Robert Bailey	*Evart*
William John Buck	*McGregor, Ia.*
Edward Percy Case, Ph.B., *Lafayette College*	*Patchogue, N. Y.*
Lloyd Gamble Cole	*Troy, Pa.*
Raymond Benjamin Coonley	*Detroit*
Allen Henry Dunton	*Blooming Prairie, Minn.*
Arthur Randolph Ernst	*Au Sable*
Frank Browning Gerls	*Ann Arbor*
Fred Browne Grosvenor, A.M., *Ohio State University*	*Troy, O.*
Harry Irving Hanson	*Milwaukee, Wis.*
Mildred Theresa Lee	*Rochester, N. Y.*
Frank Benjamin MacMullen	*Bay City*
William Denton Rowland	*Hagerstown, Md.*
Arthur Julius Sahs	*Rochester, N. Y.*
William Waldo Schairer	*Ann Arbor*
Grover Lawrence Verplanke	*Spring Lake*
Lawrence Alfred Woodlock	*Dexter*

SECOND YEAR STUDENTS

NAME	RESIDENCE
Walter William John Bien	*Rochester, N. Y.*
Harry Shook Blossom	*Saginaw*
Julius Guy Bowley	*Washington, D. C.*
Alfred Rinehart Coon	*Sidney, O.*
Alexander Ramsay Crebbin	*New Orleans, La.*
Ray Glenn DeVoist	*Ann Arbor*

Josiah Earl Dewey	*Ann Arbor*
Hazel Dell Edson	*Berrien Springs*
Arda J. Esten	*Fairport, N. Y.*
Lucas Smith Henry A.B., *Cornell University*	*Canandaigua, N. Y.*
Paul Wiley Hildebrant, A.B., *Wilmington College*	*Ann Arbor*
Harold Boyer Markham	*Marquette*
John Joseph McDermott	*Hubbardston*
George Irving Naylor, *a*	*Chili Station, N. Y.*
Walter Wayland Oliver	*Camden*
William Kirke Otis	*Honeoye Falls, N. Y.*
Edwin Rand Reynolds	*Brockport, N. Y.*
Philip Preston Serio	*Ann Arbor*
William Andrew Smith	*Fredonia, Kans.*
Charles Gilbert Steinhauser	*Rochester, N. Y.*
John Arthur True, *a*	*Ann Arbor*

FIRST YEAR STUDENTS

NAME	RESIDENCE
Wilfred Henry Baine	*Buffalo, N. Y.*
Elmer Raynor Colwell	*Hickory Grove, Pa.*
Floyd F. Fellows, A.B., *McMinnville College*	*McMinnville, Ore.*
Rollin Van Nostrand Hadley	*Bradford, Pa.*
Carl Andrew Hanson	*Fort Dodge, Ia.*
Thomas Henry Herschbach	*Chester, Ill.*
James DeWitt Jackson	*Corry, Pa.*
Judson Coleman King	*Weymouth, Mass.*
Florence Markham	*Marquette*
Harold Lewis Morris	*Detroit*
Harry Morton Sagge	*Seely Creek, N. Y.*
Burton Jay Sanford	*Clare*
Clyde Bruce Stouffer	*Hagerstown, Md.*
†Frank Willard Tufts, *a*	*Milwaukee, Wis.*
Halfdan Samuel Tvedt	*Kennebunk, Me.*
Harry Augustus Wilson	*Lansing*

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CARL J. WIGGERS, M.D.
RUSSELL W. BUNTING, D.D.S.

Special Lecturers

MILTON T. WATSON, D.D.S.
CHALMERS J. LYONS, D.D.S.

STUDENTS*

THIRD YEAR STUDENTS

NAME	RESIDENCE
John Henry Ahrens	*Holt*
Mark Lowell Baker	*Lemoyne, O.*
George Samuel Bakewell	*Plankinton, S. Dak.*
William Asa Barringer	*Huntington, W. Va.*
Frederick Raymond Beardsley	*Williamston*
Clyde Ernest Brant	*Topeka, Ind.*

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*A dagger (†) preceding a student's name signifies that he has pursued studies, for the year or a part of the year, in another Department of the University, indicated by an italic letter following the name, to-wit: *a*, Department of Literature, Science, and the Arts; *e*, Department of Engineering; *m*, Department of Medicine and Surgery; *l*, Department of Law; *p*, School of Pharmacy; *h*, Homœopathic Medical College. The letter (without the dagger) indicates that the student is pursuing a combined course, leading to a degree in each of the two Departments.

Leon Edward Broadbooks	*Detroit*
Frank Coleman Cady	*Fredonia, Kans.*
Russel Opdycke Calkins	*Bryan, O.*
James Gordon Campbell	*Ridgetown, Ont.*
George William Corns	*Detroit*
Walter James Covieau	*Ishpeming*
Charles Mossgrove Cummins	*Steubenville, O.*
Frank Ensminger Davidson	*Shelby*
Bernard George DeVries	*Holland*
Edward Bailey Douglass, A.B., *Knoxville College*	*Mason, Tenn.*
Ward Lorenzo Fickey, A.B., *University of South Dakota*	*Elkpoint, S. Dak.*
Guy Willis Fitzgerrell	*Normal, Ill.*
Elisabeth Johanna Floeter	*Stettin, Germany*
Arthur Henry Forsyth	*Tacoma, Wash.*
James Ulric Gallagher	*Pittston, Pa.*
Edgar Louis Giffen	*Mayfield, Ont.*
Howard Burrier Grant	*Ypsilanti*
Arthur James Johnson	*South Bend, Ind.*
Clarence Carson Johnson	*Tekonsha*
Clifford Grinnell Johnson	*Clinton*
William Elwin Johnson	*Petrolia, Ont.*
Frederick Grant Kirkland	*Battle Creek*
Margaretha Christina Knapper	*Hilversum, Holland*
Walter Edward Lotz	*Hollidaysburg, Pa.*
Percival Chelston Lowery	*Harbor Beach*
Michael James McKenna	*Aspen, Colo.*
Allen McLaughlin	*Sandusky, O.*
Fred Stacy Mansfield	*Evart*
Charles Frederic Mellus	*Detroit*
Clarence William Messinger	*Allegan*
Leonard Earle Murray	*Saint Ignace*
Robert Gustavus Olson	*Cleveland, O.*
Martin Webster Prince	*Cattaraugus, N. Y.*
Julian Kennedy Quinby	*Sharon, Pa.*
Loretta Sadie Rempes	*Grand Rapids*
Bert John Riepma	*Kalamazoo*
Frederick Grover Rogers	*Lansing*
Garland Chester Ross	*Santa Ana, Cal.*
George Stuart Roth	*Syracuse, N. Y.*
Sandy Rund	*Bessemer*
Theodore Christian Schwartzbek	*Bryan, O.*
Judson Franklin Selleck	*Ann Arbor*
Claud J. Smith	*Jackson*
John Anthony Sommer	*Grand Rapids*
Merton Chester Souter	*Shelby*
Herman Andrew Stobbelaar	*Zeeland*

James Blaine Sutton	*Ann Arbor*
Kanematsu Taniuchi	*Tokyo, Japan*
Charles Lewis Thomas	*Ypsilanti*
William Johnson Tremper	*Portsmouth, O.*
George Irvington Vetter	*Niles*
Leslie Henry Weber	*Elkton*

SECOND YEAR STUDENTS

NAME	RESIDENCE
Aaron Manoog Aaronian	*Harpoot, Turkey*
Edward Julius Anderson	*Manistee*
Edward John Atkinson	*Bay City*
Charles Oliver Bechtel	*Wooster, O.*
George William Bechtold	*Bellaire*
Carl Edward Bertrand	*Clayton, N. Y.*
William Frederick Bierbaum	*Waterbury, Conn.*
Howard Huntington Bold, A.B., *Hobart College*	*Watervliet, N. Y.*
Guy Cole Britten	*Hudson*
Charles Leon Brown	*Sodus, N. Y.*
Martin Leo Byrne	*Norwich, N. Y.*
John Campbell	*Saint Ignace*
Albert Ballantine Carson	*Ann Arbor*
Norman Robert Carter	*Benton Harbor*
Neil Tylee Clark	*Lakewood, O.*
Carlyle Bruce Cleland	*Erie, Pa.*
Frank Clyde Cole	*Maple Rapids*
Harry Hayes Coomer	*Wyandotte*
Ray Ward Cooper	*Elk Rapids*
Frank David Craig	*Leamington, Ont.*
Joseph Nichols Crandall	*Wakefield, R. I.*
Percy Dew Crum	*Owosso*
Milton Alfred Darling	*Ann Arbor*
Laurance Morgan Duncan	*Quincy, Ill.*
John B. Dwyer	*Hillsdale*
Michael Frank Evans	*Ypsilanti*
Charles Everett Fowler	*Springville, N. Y.*
Charles Cleveland Freeney	*Ida Grove, Ia.*
Adam Joseph Frydrychs	*Lublin, Poland, Russia*
Edward Shutts George	*Ypsilanti*
Laurence George Grossman	*Ann Arbor*
Russell Alger Hart	*Port Huron*
Roy George Hayward	*Saint Clair*
Robert Hoffman	*Jamestown*
Arthur Austin Holliss	*Brampton, Ont.*
August Herman Hoppel	*Carrollton, Pa.*
Robert Ellison Irvan	*Hardin, Ky.*
Ernest William Harrison Johnson	*Knoxville, Tenn.*

Walter Johnson	*Fergus Falls, Minn.*
Tsurataro Koike	*Niigataken, Japan*
Edwin Moore Kennedy	*Fredonia, Kans.*
Elias Kloosterman	*Zeeland*
Ray Omar Lamb	*Washington*
Harel Vernon Lilly	*Circleville, O.*
Arthur Feath Lowry	*Indiana, Pa.*
Harry Glenn Lyon	*Saint Johns*
Clarence Pearce MacDonald	*Mount Pleasant*
Fred Richard MacGrail	*East Pepperell, Mass.*
George Warner Mac Kay	*Ypsilanti*
Archibald John Mac Leod	*Trimountain*
Hugh Edward McPhillips	*Saginaw*
Guy Eustis Markley	*Detroit*
Lloyd Wellington Marlin	*Indiana, Pa.*
Harry Lee Miller	*Ithaca*
Clark Truesdall Mixer	*Muskegon*
Claude Merrill Moore	*Marinette, Wis.*
Don Cellon Nichols	*Ann Arbor*
William Frederick Northrup	*River Rouge*
John Loomis Olsaver	*Rushton*
Fred Cecil Palmer	*Ann Arbor*
Mark Albertus Parker	*Prairie du Sac, Wis.*
George Wendel Phillips	*Salamanca, N. Y.*
Ralph Fred Phillips	*Lockport, N. Y.*
Roy Hampton Purdy	*Bradford, Pa.*
Earl F. Randolph	*Salamanca, N. Y.*
George B. Rawdon	*East Tawas*
Charles Everett Read	*Carrolton, Ill.*
Leo Patrick Regan	*Winthrop, N. Y.*
Lloyd Rogers	*Petrolia, Ont.*
Max McVain Rose	*Homer, Ill.*
Arthur Hugh Ruthven	*Chatham, Ont.*
Thomas Harold Ryan	*Tunkhannock, Pa.*
Burr Orville Sabin	*Howell*
Ernest Schaetzle	*Waldenburg, Switzerland*
Theron Sylvester Shaw	*Lodi, O.*
Angel Santiago Sifre	*San Juan, Porto Rico*
Lourens Walter Smith	*Cape Town, South Africa*
William H. Thwaites	*Ann Arbor*
Ernest Ward Tibbet	*Hudsonville*
Rafael Eduardo Torregrosa	*Aquadilla, Porto Rico*
James Warner Travis	*Milford*
John Adrian Van Kley	*Zeeland*
Earl Whitney Ward	*Mohawk, N. Y.*
Ceylon Frank Waters	*Fabius, N. Y.*

Harry Bruce Webb	*Toledo, O.*
William Dale White	*Correctionville, Ia.*

FIRST YEAR STUDENTS

NAME	RESIDENCE
Paul Ryker Alexander	*Maple Rapids*
Floyd Myron Annis	*Livonia, N. Y.*
Alberto Lopez Antongiorgi	*Arecibo, Porto Rico*
Herbert Smith Bailey	*Lowell*
Mac Cooper Beerman	*Benton Harbor*
Kurt Ernest Berend	*New Bremen, O.*
John Horace Birkett	*East Liverpool, O.*
Karl Edward Bliss	*Greeley, Colo.*
Arturo Bordato	*Uruguay, Argentine Republic, S. A.*
William Nelson Brewer	*Springwater, N. Y.*
Harry James Brown	*Benton Harbor*
Arthur Wilson Bruce	*Kalamazoo*
Clay J. Bullis	*Maple Rapids*
Ray Wilson Burch	*Grand Rapids*
William Louis Burk	*Wapakoneta, O.*
Lewis Fisk Burlingame	*Friendship, N. Y.*
Waldo Milan Coburn	*Coopersville*
Felix Bond Cooper	*Windsor, N. C.*
George William Cosper	*Detroit*
Claude Bisall Curdy	*Howell*
Matthew Francis Deahy	*Pawtucket, R. I.*
Ralph Philip Dendel	*Wayne*
Frank John Dengler	*Rochester, N. Y.*
Edward Joseph Denhart	*Pipestone, Minn.*
Stephen Francis Devereaux	*Howell*
John Maurice Foley	*Rochester, N. Y.*
Wade Stuart Forth	*Manistee*
Pyrle Adelbert Fowler	*Battle Creek*
Bernard Barney Frankel	*New Haven, Conn.*
Paul Leonard Gardner	*Harbor Springs*
James Joseph Gialdini	*Girard, O.*
Frank L. Hardy	*Midland*
Grover Cleveland Herrington	*Spokane, Wash.*
Kanji Kamitani	*Yashiro, Japan*
Harry Henry Kaufman	*Helena, Mont.*
Krikor Mardiros Khantamour	*Divrig, Sivar, Asia Minor*
Paul James Kuebler	*Toledo, O.*
Rufus Leigh	*Provo, Utah*
Frank Alvin Limpert	*Ann Arbor*
Cornelius Locke	*Grand Haven*

John Henry Longe	*Ionia*
Oswald Marks	*Detroit*
William Abram Matheson	*Goderich, Ont.*
Wilbert Strayre Mathias	*Steelton, Pa.*
Ralph Miller	*Findlay, O.*
Earl Archibald Morrison	*Elk Rapids*
Morton Drake Olcott	*Canastota, N. Y.*
Clarence Marshall Orser	*Saint Ignace*
James Herbert Patterson	*Muskegon*
Harry Jay Post	*Gobleville*
Chester Franklin Pryor	*Hastings*
William Francis Quinn	*Cortland, N. Y.*
†George Cooper Robinson, *e*	*Muskegon*
Willard Curtis Roberts	*Columbus, Wis.*
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Stanley Roy Ruthven	*Chatham, Ont.*
Lawrence Clyde Shonerd	*Elko, Nev.*
Stephen Douglass Sparks	*Stevensville, Va.*
James Frederick Spencer	*Grand Rapids*
Fordyce Park Stanley	*Trumansburg, N. Y.*
William Frank Stoetzer	*Wellsburg, W. Va.*
Lawrence Erwin Sullivan	*Lima, O.*
Haskell James Sweet	*North Baltimore, O.*
Allan Marshall Taylor	*Cincinnati, O.*
Arthur Harrison Terrill	*Great Falls, Mont.*
Glancy Glover Thomas	*Grand Rapids*
Halbert Carl Thomas	*Northport*
Victor Thompson	*Seattle, Wash.*
Frederick Louis Walter	*Carrollton, Ill.*
Horton Rogers Warren	*Grand Rapids*
Joseph Harvey Whitcomb	*Bridgeport, Conn.*

Summer Session 1910

IN THE DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS; IN THE DEPARTMENT OF ENGINEERING; IN THE DEPARTMENT OF MEDICINE AND SURGERY; IN THE DEPARTMENT OF LAW, AND IN THE HOMŒOPATHIC MEDICAL COLLEGE.

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CLIFTON O. CAREY, B.S.
DANIEL C. MILLER, B.S.
NEIL H. WILLIAMS, M.S.
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STUDENTS*

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS

GRADUATES

NAME	RESIDENCE
John Quincy Adams, B.L., LL.B., *r* English Oratory, English Drama, English History.	*Alma*
Wilford Merton Aikin, B.S., *Muskingum College, r* English, Oratory, Education.	*Jackson*
Ethel Nowlen Allen, A.B., *Oberlin College*	*Benton Harbor*
Eveline Louise Anderson, A.B., *r* Mathematics, History of Education, Psychology.	*Houston, Minn.*
William Benton Arbaugh, A.B., *r, g* Education, Ethics, Sociology.	*Ypsilanti*
Frances Mabel Ashall, A.B., *Toronto University*	*Toronto, Ont.*
George Preston Bacon, A.B., *Dartmouth College, r* Physics, Mathematics, Astronomy.	*Wakefield, R. I.*
Grace Mabel Bacon, A.B., *Mount Holyoke College,* A.M., *r, g* German Literature, Germanic Philology, English Philology.	*Dorchester, Mass.*

---

*Those whose names are followed by (*r*) were regularly enrolled as students in the Graduate School during the Summer session of 1909.

Otherwise italic letters following a name show that the student is attending the University in the year 1909-1910 and is enrolled in the Department indicated: *a,* denoting Department of Literature, Science, and the Arts; *e,* Department of Engineering; *m,* Department of Medicine and Surgery; *l,* Department of Law; *p,* School of Pharmacy; *h,* Homœopathic Medical College; *d,* College of Dental Surgery. The principal subjects of study pursued by students registered on the major and minor plan are given under their respective names.

Grace Wilder Bailey, Ph.B., *Hillsdale College, r* Zoology, Botany, Chemistry.	*Hillsdale*
Morell Brainard Baker, A.B., *r* Physics, Organic Chemistry, Technological Chemistry.	*Saginaw*
Fanny Danforth Ball, A.B.	*Grand Rapids*
Ernest Franklin Barker, B.S., *University of Rochester, r* Physics, Mathematics, Chemistry.	*Rochester, N. Y.*
Esther Amelia Barnes, B.L., *Oberlin College*	*Tallmadge, O.*
Arthur Emmons Bellis, A.B., *r* Physics, Electrical Engineering, Geology.	*Laramie, Wyo.*
Rachel Marquand Benham, B.S., *Michigan Agricultural College*	*Milford*
Marion LeRoy Billings, A.B., *r* Psychology, Modern Philosophy, Education.	*Adrian*
James Branch Bocock, LL.B., *Georgetown University*	*Portland, Ore.*
Samuel Brumfield Bond, A.B., *Alfred University*	*Salem, W. Va.*
Solomon Jeffords Brainerd, A.B., *Olivet College, r* Education, Sociology, Plan B.	*Olivet*
Willa Norvella Brand, A.B., *West Virginia University, r* English Literature, Rhetoric, Education.	*Morgantown, W. Va.*
James Irven Bricker, A.B., *Hillsdale College,* A.M., *ibid., r* Botany, Plant Ecology, Zoology.	*Saginaw*
Charles William Brown, B.S., *Oklahoma Agricultural and Mechanical College*	*East Lansing*
Charles Winfield Burchard, A.B., *Allegheny College, r* General and Physical Chemistry, Organic Chemistry, Physics.	*Guys Mills, Pa.*
Anna Mary Burkheiser, A.B., *r* German, Mathematics, Latin.	*Ypsilanti*
Bessie May Burnell, A.B., *Lake Erie College, r* Physics, Mathematics, Chemistry.	*Greenwich, O.*
Orma Fitch Butler, A.B., A.M., Ph.D., *r* Philosophy.	*Ann Arbor*
Mollie Drew Butts, A.B., A.M., *r* Psychology.	*Lansing*
Harvey Blaine Campbell, B.S., *r* Physics, Analytical Chemistry, Organic Chemistry.	*Kansas City, Mo.*
Katherine Campbell, A.B., *r* Latin.	*Ann Arbor*

Gail Luke Carver, A.B., A.M., *r* Zoology, Mineralogy, Physics.	*Climax*
Earl William Castle, A.B., *r, g* Astronomy, Mathematics, Insurance.	*Ann Arbor*
Florence Marilla Cate, Ph.B., *Morningside College, r* Latin, Roman Political Institutions, English.	*Winfield, Kans.*
William Dean Chadwick, A.B., *Marietta College, r* English, Rhetoric, English History.	*Albion*
Mary Olive Chandler, A.B.	*Mishawaka, Ind.*
Harvey Fisk Clarke, A.B., *Olivet College, r* German, Education, Plan B.	*Benzonia*
Charles Atwood Clay, B.S., *Central College*	*Huntington, Ind.*
Thomas Percival Clifford, A.B., *Detroit College, a, m*	*Detroit*
Charles Wiggins Cobb, A.B., *Amherst College*, A.M., *ibid., r* Mathematics, Education.	*Amherst, Mass.*
Ernest Edwin Cody, A.B., *Albion College, r* Education, American History, Sociology.	*Plainwell*
Roy Vallette Coffey, LL.B.	*Ann Arbor*
Leroy Melville Coffin, B.S., *University of Maine, r* Mathematics, Physics, Mathematics.	*Keuka Park, N. Y.*
Mildred Irene Collins, A.B., *r* Rhetoric, Aesthetics and English Literature, American History.	*Chicago, Ill.*
Francis Howell Colman, Ph.B., *Kalamazoo College, p*	*Kalamazoo*
Harry Mason Comins, A.B., *r* Education, American History, Political Economy.	*Saginaw*
George Henry Coverdale, A.B., *r* Education, Sociology, Philosophy.	*Mayville*
John Thrale Creighton, A.B., *l*	*Springfield, Ill.*
D. Wilson Crouse, A.B., *Wittenberg College*, A.M., *ibid., r* Physics, Electrical Engineering, Mathematics.	*Atchison, Kans.*
Frances Norton Curry, Ph.B., *University of Wooster, r* German, Education, Plan B.	*Ann Arbor*
George Herbert Curtis, A.B., *Albion College*, A.B., *r* Physics, Education.	*Williamston*
Mary Harriet Curtiss, Ph.B., *University of Chicago, r* Latin, Mathematics, English.	*Crown Point, Ind.*
Ralph William Darner, A.B., *Wittenberg College*, A.M., *ibid., r*	*Wahpeton, N. Dak.*

Mary Julia Wall Dillingham, A.B., *University of Indiana, r* Latin, German, English.	*Indianapolis, Ind.*
William Duven, A.B., *Hope College, r* Botany, Plant Physiology, Chemistry.	*Holland*
Alfred Lynn Ferguson, A.B., *r* Physical Chemistry, Physics, Philosophy.	*Ann Arbor*
Frank Alexander Ferguson, A.B., *r* Physics, Electrical Engineering, Chemistry.	*Traverse City*
William Andrew Ferguson, A.B., *r* Physics, Mathematics, Chemistry.	*Traverse City*
Charles Smalley Foster, A.B., *Antioch College*, A.M., *ibid., r* English, Rhetoric, Aesthetics.	*Fletcher, O.*
Elbertie Foudray, B.S., *Northwestern University, r* Physics, Chemistry, Mathematics.	*Ann Arbor*
Ingeborg Sophia Fredlund, B.S.	*Ann Arbor*
Florence Myrtle Frost, A.B., *Northwestern University, r* English, German Literature, Germanic Philology.	*Aberdeen, S. Dak.*
Dorothy Fuerstnau, A.B., *r* German Literature, Germanic Philology, English.	*Saginaw*
Leonard Stewart Galligher, B.S., *Muskingum College*	*New Concord, O.*
Edward Everett Gallup, A.B., *r* History and Philosophy of Education, Sociology, Psychology.	*Adrian*
James Boyd Gemberling, A.B., *r* Chemistry, Physics.	*Three Rivers*
Quinter Olen Gilbert, A.B., *r, g* Zoology, Neurology, Bacteriology.	*Grundy Center, Ia.*
Huldah Augusta Haenig, A.B., *r* German, English, Plan B.	*Ludington*
Frances Adelia Hallock, A.B., *Mount Holyoke College*	*New York, N. Y.*
Luella Elizabeth Hallock	*Jackson*
Arthur Hamilton, A.B., *Harvard University, r, g* French, Spanish, Italian.	*Fort Wayne, Ind.*
Ellen Augusta Hanson, B.O., *Emerson College of Oratory*, M.O., *ibid.*	*Saugatuck*
Willis E. Hanson, Ph.B., *Albion College, r, g* Sociology, Theoretical Education, Administrative Education.	*Owosso*
Byron Berry Harlan, LL.B., *a*	*Dayton, O.*
Theron Alvin Harmon, A.B., *r* Education, Sociology, Philosophy.	*Yankton, S. Dak.*
William Henry Hart, A.B., *Albion College, r* Education, Philosophy, Education.	*Princeton*

Ernest Clark Hartwell, A.B., *Albion College, r* Economics, American History.	*Albion*
Johannes Hasting, Ph.D., *University of Jena, Germany*	*Bloomfield, N. J.*
Ada May Herr, A.B., *Southwestern College, r* Sociology, American History, Plan B.	*Kiowa, Kans.*
Albert Euclid Hinsdale, A.B., M.D.	*New York, N. Y.*
Arthur Joseph Hoare, A.B., A.M., *r*	*Wichita, Kans.*
Ellen Clara Hogeboom, B.S., M.S.	*Ann Arbor*
Thomas Edward Hook, C.E., *Ohio Northern University*	*Holmesville, O.*
Frances Powell Hooper, Ph.B., *University of Mississippi, r* Plant Ecology, Plant Physiology, Zoology.	*Columbus, Miss.*
William James Hoover, A.B., *Albion College, r, g* Mathematics, Physics, Physics.	*Ann Arbor*
Laura Howard, A.B., *Mississippi Industrial Institute and College*	*Columbus, Miss.*
Lottie Howard, B.S., *Mississippi Industrial Institute and College*	*Columbus, Miss.*
Harry Hale Howett, Ph.B., *Antioch College, r* American History, English, Education.	*Osborne, O.*
Hermon Huffstater, B.S., *Adrian College*	*Watertown, N. Y.*
Nettie Elizabeth Hughes, A.B., *r*	*Elkhart, Ind.*
Ethel Fountain Hussey, Ph.B.	*Ann Arbor*
Wilbur Fisk Jackman, B.S., Ph.C., *r* Mineralogy, Physical Chemistry, English.	*Orono, Me.*
Frank C. Janes, B.S., *Albion College, r* History of Education, Educational Theories, American History.	*Belding*
German Levant Jenner, A.B., *r, g* Physics, Mathematics, Physics.	*Ann Arbor*
Jay Howard Johnson, A.B., *r*	*Ann Arbor*
Leah Bidena Johnson, A.B., *University of Toronto,* A.M., *ibid.*	*Strathroy, Ont.*
Clarence Cecil Kail, B.S., *Ohio Northern University*	*Upper Sandusky, O.*
Cincinnatus Decatur Killebrew, M.S., *Alabama Polytechnic Institute*	*Auburn, Ala.*
Helen Beecher King, Ph.B., *r*	*Flint*
Leigh Seward Krake, A.B., *University of Nebraska*	*West Point, Neb.*
Carrie Krell, *r* English Literature, German.	*Holland*
Daniel Acker Lehman, Ph.B., *Wesleyan University,* A.M., *Western Reserve University*	*Goshen, Ind.*

Mary Louisa Lepper, A.B., *Butler College,* A.M.	*Kendallville, Ind.*
Walter Glen Lewis, B.S., *Columbia University, r*	*Ypsilanti*
Uriah Lincoln Light, B.S., *Ohio Northern University*	*Greenspring, O.*
George Allan Lindsay, A.B., A.M., *r* Physics, Mathematics, Astronomy.	*Saint Louis, Mo.*
Jay Mede Lininger, A.B., *Westminster College*	*Mercer, Pa.*
Fred Aaron Loew, B.S., *Central College, r* Ecology, Mycology, Mineralogy.	*Huntington, Ind.*
George Washington Logan, M.D., *Saginaw Valley Medical College*	*Valley Center*
Chester Miller Loomis, A.B., *r, g* Sociology, English, Philosophy.	*Clayton*
Roy Kenneth McAlpine, A.B., *g*	*Jackson*
Arthur Louis McCarty, A.B., *Valparaiso College,* A.B., *r* Mathematics, Physics, History of Education.	*Columbia City, Ind.*
Charles Flowers McCombs, A.B., *Ohio State University*	*Columbus, O.*
Pearl MacDonald, A.B., B.S., *Columbia University*	*Ann Arbor*
John James McElree, A.B., *Westminster College, r* Latin, Greek, Roman Political Institutions.	*New Wilmington, Pa.*
Raymond Earl Manchester, A.B., *r, g* English, Philosophy, Education.	*Battle Creek*
Minnie Maude Manley, A.B., *r* Latin, German Literature, Germanic Philology.	*Caro*
Hermine Mann, A.B.	*Chicago, Ill.*
Mary Edith Marriott, B.L., *Ohio Wesleyan University*	*Toledo, O.*
William Orville Mendenhall, A.B., *Penn College,* A.M., *ibid.,* A.B., *Haverford College, r* Mathematics, Insurance, Astronomy.	*Earlham, Ind.*
Emerson Romeo Miller, Ph.C., Ph.M., B.S., M.S., *r* Organic Chemistry, Plant Physiology, Pharmacognosy.	*Auburn, Ala.*
Ina Annette Milroy, Ph.D., *University of Berlin, r* Mathematics.	*Ann Arbor*
LeGrand Morell, B.S., *Albion College, r* Physics, Chemistry, Education.	*Midland*
Isabel Russell Morse, Ph.B., *Northwestern University*	*Los Angeles, Cal.*

Margaret Parthenia Murrell, A.B., *r* English, Latin, Aesthetics.	*Decatur, Ill.*
John Noone, B.C.S., *New York University*	*New York, N. Y.*
Seaton Anderson Norcross, Ph.B., *Adrian College*, A.B., *r*	*Ann Arbor*
Edwin Prime Nutting, A.B.	*Moline, Ill.*
Clyde S. Paxton, A.B., *r* Physics, Mathematics, Electrical Engineering.	*Marshall*
Mabel Adaline Pearl, A.B., *Oberlin College, r* Physics, Geology, Plan B.	*Norwalk, O.*
Max Minor Peet, A.B., *r, g* Zoology, Bacteriology, Zoology.	*Iosco*
Artie Katharine Peyton, A.B., *Mississippi Industrial Institute and College*, B.S., *ibid., r* Zoology, Embryology, Botany.	*Columbus, Miss.*
Frank J. Phillips, B.S., *Michigan Agricultural College*, A.B., M.S., *r*	*Lincoln, Neb.*
Nathan Harley Phillips, A.B., *Allegheny College*	*Girard, Pa.*
Hermon Carleton Pitton, B.S., *Union College, Nebraska, r* American History, International Law, Political Economy.	*Stanton*
Clarence Wesley Pratt, B.S., *Valparaiso University*	*Monon, Ind.*
Walter Mitchell Pratt, B.S.	*Detroit*
Sarah May Putnam, B.L., *Hillsdale College*, A.B.	*Litchfield*
Edna May Ramsey, A.B., *Northwestern University*	*LaSalle, Ill.*
Richard Herb Reece, B.S., *Kansas State College*	*Beacon*
Daisy Cora Reeves, A.B. Zoology, Entomology, Botany.	*Chicago, Ill.*
Edgar Nevin Rhodes, A.B., *Ursinus College, r* Education, Philosophy, Sociology.	*Fairfield, Pa.*
Homer Elmer Robbins, A.B., A.M., *r* Latin, Greek, Sanskrit.	*Washington, Pa.*
Floyd Wellington Robison, B.S., *Michigan Agricultural College, r* Physiological Chemistry, Hygiene, Organic Chemistry.	*Lansing*
Manuel Daniel Rojas, Ph.G., *St. Louis College of Pharmacy, p*	*San Jose, Costa Rica*
Eugene Charles Rowe, A.B., *Olivet College*, Ph.D., *Clarke University, r*	*Mount Pleasant*
Mabel Hoffmann Schell, A.B., *University of Cincinnati, r, g* German, French, Plan B.	*Cincinnati, O.*

Otto Hugo Adolf Schenk, A.B., *r* Mineralogy, Chemistry, Geology.	*Brantford, Ont.*
Carl Frederick Schreiber, A.B., *r* German, Sociology.	*Saginaw*
Edward Arlington Seibert, A.B., *Oberlin College*	*Dayton, O.*
Jay Wesley Sexton, B.S., *Albion College, r* Education, American History, Sociology.	*Fenton*
Fern L. Shannon, Ph.C., B.S., *r* Botany.	*Detroit*
Rufus Clark Shellenbarger, A.B., A.M., *r, g* Physics, Mathematics.	*Yankton, S. Dak.*
Louis Siff, B.S., *Cornell University*	*Louisville, Ky.*
William Warner Sleator, A.B., *r, g* Physics, Mathematics, Electrical Engineering.	*Ann Arbor*
Benjamin Franklin Smith, A.B., *r* English, Rhetoric, Philosophy, Plan B.	*Toledo, O.*
Clyde Marsh Smith, A.B., *r* English Literature, American History, Oratory.	*Pinckney*
Gertrude E. Spencer, A.B., *r* German Literature, Germanic Philology, Education.	*Webberville*
Alfred Springer, Jr., A.B., *Yale University, r* Organic Chemistry, Physical Chemistry.	*Norwood, O.*
Adaline Eugenia Stanley, B.S., *Lebanon University*, A.B., *ibid.*, A.M., *r, g*	*Stanleyville, O.*
Stella Mathilda Stein, A.B., *University of Pittsburgh*, A.M., *ibid.*, *r* German Literature, Germanic Philology, English.	*Pittsburg, Pa.*
Kathrine Mitchell Stewart, Ph.B., *r* Mathematics, Physics, Physics.	*Calumet*
Herbert King Stone, A.B., *r* French, Spanish, English.	*New Orleans, La.*
Anna Muriel Streibert, A.B., *r* Education, Philosophy, German.	*Ann Arbor*
Magdalena Stukey, A.B.	*Grabill, Ind.*
Florence Sunderland, A.B., *r* European History, American History, Education.	*Hartford, Conn.*
Harvey Marshall Swift, A.B., *Olivet College*	*Olivet*
Thomas Arthur Taper, B.S., *r* Education, Physics.	*Lake Linden*
Anna May Tate, A.B., *Oberlin College, r* English Literature, Rhetoric, Oratory.	*Akron, O.*
Leo Thomas, A.B., *r* Botany. Mycology, Zoology.	*Troy, O.*
Jesse Earl Thornton, A.B., *Albion College*	*Sherwood*

Harry Conrad Thurnau, A.B., A.M., *r* German Literature, Germanic Philology, English Literature.	*Ann Arbor*
Fred Alfred Tiedgen, A.B., *Olivet College, r* Education, Education, History.	*Mason*
Ruth Keeler Todd, A.B., *Oberlin College*	*Berea, Ky.*
Frank Gerow Tompkins, A.B.	*Battle Creek*
Luella Townley, A.B., A.M., *r* Rhetoric, English, French.	*Cleveland, O.*
Benjamin Harrison Turner, A.B., *Richmond College, r* History, Economics, Sociology.	*Richmond, Va.*
Louisa Amelia Van Dyke, A.B., *r* Mathematics, Physics, Education.	*Greencastle, Ind.*
John Van Haitsma, A.B., *r* Botany, Zoology, Physics, Plan B.	*Falmouth*
Agnes Carr Vaughan, A.B., *Galloway College, r, g* Greek, Latin, German.	*Ypsilanti*
Clara Vierling, A.B., *Indiana University, r* History, English, Latin, Plan B.	*Princeton, Ind.*
Julius Franklin Vornholt, A.B., *Ohio State University, r, g* French.	*New Bremen, O.*
Walter Hiram Wadleigh, A.B., *r* Physics, Astronomy, Mathematics.	*Parkville, Mo.*
Adam Alexander Walker, A.B., *r* Political Economy, Government, American History.	*Lisbon, N. Y.*
Howard LeRoy Wallace, B.S., *Hanover College, r* Botany, Zoology, Plant Physiology.	*Konxville, Tenn.*
Olin Dantzler Wannamaker, A.M., *Vanderbilt University*, A.M., *Harvard University*	*Fayetteville, Ark.*
Arnon Wallace Welch, B.C.S., *Meridian Male College*	*Meridian, Miss.*
James Ervin Weyant, A.B., *Albion College, r* Physics, Physical Chemistry, Physics.	*Calumet*
Charles Erna White, A.B., *r* American History, European History, Education.	*Monroe*
Johann Christian Wiegand, A.B., *Capital University*	*Ann Arbor*
Edward James Willman, A.B.	*Gladstone*
Esther Gilbert Willoughby, M.D.	*Detroit*
Carl Burghardt Wilson, A.B., *Oberlin College*, A.M., *ibid., r* Botany, Zoology, Ecology.	*Oberlin, O.*

Herbert Hollingsworth Woodrow, A.B., Ph.D., *Columbia University*	*New York, N. Y.*
Charles Henry Woolbert, A.B., *Northwestern University, r* English, Oratory, Rhetoric.	*Albion*
James Snowden Worrall, B.S., *Ohio Wesleyan University, r* English, German, Education.	*Delaware, O.*
Charles Allen Wright, B.E., *Tulane University,* E.E., *ibid.*	*Vicksburg, Miss.*
Milton Bruce Wright, B.E., *Juniata College,* M.E., *ibid.*	*McAlevy's Fort, Pa.*
Elizabeth Dorothy Wuist, A.B., *Maryville College,* A.B., *r, g* Botany, Invertebrate Zoology, Physiology of Plant Reproduction.	*Dayton, O.*
Merle Carlyle Yokom, A.B., *Albion College, r* History of Education, American History, Education.	*Rochester*

UNDERGRADUATES

NAME	RESIDENCE
Nelson Abbott	*Lake City*
Edward LaRue Abell	*Berrien Springs*
William Abramsky	*Chicago, Ill.*
Frank Wilson Ackerman	*Lake Linden*
Rose Elisabeth Agerter	*Lima, O.*
Werner Stilwell Allison, *a*	*Rochester, N. Y.*
James Harlan Anderson, *m*	*Manistee*
Ruth McClure Anderson, *a*	*Denver, Colo.*
John William Angerer	*Scofield*
Emilie Pauline Arnold	*Toledo, O.*
Edward Kennedy Bacon	*Denver, Colo.*
Murray McKanna Baker	*Minooka, Ill.*
Effie Eulalia Barden	*Lansing*
Joseph Shumway Barker	*Chicago, Ill.*
Alice Louise Barnes, *a*	*Ann Arbor*
Leola Barbara Barnes, *a*	*Battle Creek*
William Hutt Barnes, *a, m*	*Ann Arbor*
Grover Cleveland Bartoo, *a*	*Mills, Pa.*
Florence Grace Bateson	*Bay City*
Kathlyn Marguerite Beardsley, *a*	*Ann Arbor*
Minerva Griswold Beckwith	*Grand Rapids*
Hubert Edwin Bell, *a*	*Union City*
Herbert Rovell Benham	*Clarence, N. Y.*
Albert Arms Bennett	*Ann Arbor*
Squire Schween Beverly	*Berkey, O.*

Paul C. Bickel	*Greenville, O.*
William Edmund Biggers, *a*	*Detroit*
Thomas Earl Howard Black, *a*	*Ann Arbor*
Judson Wright Blackman, *a*	*Minnewaukan, N. Dak.*
Harold Blair, *a*	*Mount Clemens*
Elizabeth Lucinda Bradley	*Cato, N. Y.*
Lena Brady	*Union City, Ind.*
Georgette Brémont	*Detroit*
William Nelson Brewer, *d*	*Springwater, N. Y.*
Chauncey Bruce Brewster	*Ann Arbor*
Hazel Eileen Brightman	*Ann Arbor*
Clifford Vance Brown, *a*	*Ann Arbor*
Elmer Charles Brown	*Manawa, Wis.*
Jessie Mary Brown	*Ann Arbor*
Lillian Mae Brown	*Ionia*
Helen Pearl Buflis	*Maple Rapids*
James Dennis Burby, *a*	*Ann Arbor*
Grace Ellis Burke	*Geneva, Ind.*
Robert Nathan Burton, *e*	*Oak Park, Ill.*
Carl Julius Bush, *a*	*Ann Arbor*
Timothy Cornelius Caddigan, *a, m*	*Johnson, N. Y.*
Cornelia Hotchkiss Campbell	*Ann Arbor*
Walter Moore Campbell, *a*	*Gladwin*
George Sherburne Carpenter, *p*	*Ionia*
Howard Wiltse Carpenter, *a*	*Big Rapids*
Ora May Carrel	*Grand Rapids*
Amy Carroll, *a*	*Richmond, Ind.*
Bertha Esther Cassidy	*Ann Arbor*
Veva Beatrice Castell	*Angola, Ind.*
Leora Adelia Chapin	*Laingsburg*
Hiram Hobert Chapman	*Ypsilanti*
Alberta Elizabeth Chase	*Elsie*
Alta Blanche Chase	*Otsego*
Lew Allen Chase	*Ann Arbor*
Nancy Adelaide Childs, *p*	*Sherman, N. Y.*
Laura Esther Christensen, *a*	*Greenville*
Chan Tung Chung	*Tientsin, China*
Anna Elizabeth Clark, *a*	*Wyandotte*
Mabel Edith Clark	*Lexington*
Alyce Gertrude Cleaver	*Ann Arbor*
Mary Jeannette Coates, *a*	*Ann Arbor*
Edward LeRoy Cole	*Coloma*
Iva Blanche Colegrove, *a*	*Ann Arbor*
Mary Ora Coleman	*Warrensburg, Mo.*
Lila Mae Colwell	*Byron Centre*
Charles Emmett Condon, *m*	*Cassopolis*
Helen Hopkins Cook, *a*	*Marshall*
Romeo Thane Cook, *a*	*Chesaning*

John Booth Cooley, *a*	*Ann Arbor*
Charles Peter Corcoran	*Saginaw*
George Bradford Corless, *e*	*Silverwood*
Hubert Ray Cornish	*Saginaw*
Marie Cornwell	*Ann Arbor*
Inez Cox	*Jackson*
Earle Eugene Crawford	*Ann Arbor*
Irene Pearl Crawford, *a*	*Mount Clemens*
Arthur Earl Cross	*Saint Ignace*
George Morris Curtis, *a*	*Onondaga*
Pearl Wilma Davey, *a*	*Lake Linden*
Florence Ada Davis, *a*	*Muskegon*
Jean Elizabeth Davis, *a*	*Flint*
Katherine Inez Davis, *a*	*Bemus Point, N. Y.*
Doris Ann De Mars	*Davenport, Ia.*
Julia Loretta Desmond	*Menominee*
Alonzo Benjamin De Spelder, *e*	*Zeeland*
Edward Adrian DeWindt, *e*	*Grand Rapids*
Mary Louise Dickie	*Marinette, Wis.*
Angelina Florenza Di Martino	*Scranton, Pa.*
Courtland Stark Dines	*Denver, Colo.*
Jay Karl Ditchy	*Sandusky, O.*
John Arnold Doelle, A.B.	*Houghton*
Hazel Evans Donnelly	*Ann Arbor*
Percy James Donovan, *l*	*Detroit*
George Ellsworth Downs	*Grand Rapids*
George Adam Drach, *a*	*Ludington*
Stephen Maynard Dudley	*Birmingham*
Mary Augusta Duff, *a*	*Oak Harbor, O.*
Kenneth Whitney Duncan, *a*	*Quincy, Ill.*
Sophie Estelle Dunham	*Alma*
Helen Eggert	*Burlington, Ia.*
Ernest Elgart, *a*	*Colchester, Conn.*
Archie Aerie Ellsworth	*Stanton*
Frank Edwin Ellsworth	*Alma*
Grace Isabel Erb	*Grand Rapids*
John Emil Ericson	*Marquette*
Luther Paul Ettinger	*Ann Arbor*
Robert George Evans	*Coldwater*
John Patrick Faucher, *l*	*Hemlock*
Carlisle Albert Ferguson, *a, l*	*Denver, Colo.*
Carl Milton Ferner	*Grandville*
Daniel Bernard Feyan	*Hubbardston*
Laura Mary Finkbeiner, *a*	*Ann Arbor*
Blanche Marie Flanagan	*Saint Johns*
Morris Jacob Flexner, *a*	*Louisville, Ky.*
Albert Robinson Ford	*Jackson*
George Sherman Foster	*Hartford*

Louise Mann Frost	*Aberdeen, S. Dak.*
Carrie Helen Fuerstenau	*Saginaw*
Jennie Gertrude Fuerstenau	*Saginaw*
Glenwood Charles Fuller	*Otisville*
William Borland Fullerton, *a*	*Kansas City, Mo.*
Edith Christine Gabriel	*Owosso*
Ina Virginia Gabriel	*Owosso*
George Wilfred Gannon, *m*	*Ann Arbor*
Bert Hood Gaultney	*Pulaski, Tenn.*
Helen Elisabeth Gibson, *a*	*Ann Arbor*
Myra Genevieve Gibson	*Bellevue*
Theodore Thomas Gibson, *p*	*Ann Arbor*
Dell M. Gillette	*Traverse City*
Gladys Elizabeth Gillette, *a*	*Pellston*
Mae Milbourne Gingles	*Eaton Rapids*
Susan Glass	*Ypsilanti*
Ernest Eugene Godfrey, *a*	*Ann Arbor*
Albert Oscar Goodale	*Ann Arbor*
Ralph Hinsdale Goodale, *a*	*Angola, Ind.*
Fred Edwin Gooding, *a*	*Lima, O.*
George Ellsworth Goodrich, *a*	*Dexter*
Hazel Graham	*New Concord, O.*
William Burritt Gray, *e*	*Geneva, N. Y.*
Lucien Helm Greathouse, *a*	*Washington, D. C.*
Marie Amalie Hermine Grebe	*Marburg, Germany*
Carlton Wesley Green	*Auburn, N. Y.*
Loa Green	*Big Rapids*
Reuben R. Green	*Perry*
Mary Greenacre, *a*	*Chicago, Ill.*
Irving Waterloo Greene, *a, m*	*Richmond*
Allen Thayer Greenman	*Boyne City*
Virgil David Greer, *a, m*	*Mount Vernon, Ill.*
Fred Melvin Gunn, *a*	*Lisbon*
Mary Catherine Haarer	*Ann Arbor*
Howard Shields Hall	*Kansas City, Mo.*
Anthony Andrew Adam Hammersmith, *a*	*Massillon, O.*
Eva Elizabeth Hanks, *a*	*Hume, N. Y.*
Fanny Fern Harding	*Martin*
Evelyn Rose Hardinghaus	*Ann Arbor*
Carroll Willis Harlan	*Saint Louis, Mo.*
Anna May Harper	*Milford*
Eleanor Nettie Harrington, *a*	*Ontonagon*
Jerry Ignatius Harrington	*Ishpeming*
Elizabeth Helen Harris, *a*	*Detroit*
Pauline Harris, *a*	*Detroit*
Albert Sargent Harvey	*Saginaw*
Campbell Harvey	*Detroit*
Ralph Ernest Hawley	*Ann Arbor*

Harry Gordon Hayes, *a*	*Prairie City, Ia.*
Stephen John Hebeler, *a*	*Swarmville, N. Y.*
Edward Liveus Hendrick	*Sterling, Ill.*
Herbert Bradley Hendrick	*Lake Linden*
John Carman Herbst, *a*	*Ann Arbor*
Andrew Jackson Herron	*Hillsdale*
Elva Helen Hickox	*Ann Arbor*
Frances Catharine Hickox	*Niagara Falls, N. Y.*
Isadore Benjamin Hirshberg	*Bay City*
Lynne Arthur Hoag, *a*	*Ann Arbor*
Ruth Elizabeth Hobart, *a*	*Friendship, N. Y.*
Roland Paul Hofmann, *a*	*Fort Wayne, Ind.*
Edwin Alonzo Hollister	*Holly*
Roy Hinman Holmes	*Hillsdale*
Warren Samuel Holmes	*Fowlerville*
Wallace Edwin Hopkins, *m*	*Marion Center, Pa.*
Mabel Leonore Houghton	*Jackson*
Augusta Eva Howell	*Saginaw*
Annie Phillips Hughes	*West Philadelphia, Pa.*
Grace Pauline Hunt	*Saint Johns*
Frances Louise Hunter	*Adrian*
Russell Claudius Hussey, *a*	*Mendon, O.*
James McCready Huston	*Brownsville, Pa.*
Melita Gray Hutzel	*Muncie, Ind.*
Pierre Cameron Hyde, *p*	*Malone, N. Y.*
Stanley Wilfred Iles	*North Chili, N. Y.*
Ray Keeslar Immel, *a*	*Ann Arbor*
Tsu En Ing	*Philadelphia, Pa.*
Henrietta Josephine Inglis, *a*	*Boulder, Colo.*
Adelaide Victoria Inman, *a*	*Highland Park, Ill.*
Florence Isabel Jacobi,	*Mount Clemens*
Della Hudson Jacques, *a*	*Saginaw*
James Knox Jamison, *a*	*Mount Pleasant*
Helen Jaquette, *a*	*Woodstown, N. J.*
Mary Blanchard Jefferds, *a*	*Charleston, W. Va.*
William Sanborn Jenks, *a*	*Port Huron*
Viola Jewell	*Whitthorne, Tenn.*
Charles Richard Johnson	*Augusta*
Hilda Ray Johnson, *a*	*Windsor, Ont.*
Mary Roosevelt Johnson	*Sag Harbor, N. Y.*
James Scott Johnston, *a*	*California, Pa.*
Dana Erwin Jones, *a*	*East Randolph, N. Y.*
Harriet M. Jones	*Akron, O.*
Lloyd Gibby Jones, *a*	*Delevan, N. Y.*
McClellan Gibby Jones, *a*	*Delevan, N. Y.*
Reinhold Julius Josenhans	*Ann Arbor*
Adele Hoffman Kaplan	*Selma, Ala.*
Philip Marshall Keen. *a*	*Galien*

Cecil Edward Kell, *l*	*Centralia, Ill.*
Dora Barbara Keller	*Royal Oak*
Merlin Keller, *a*	*Chase*
Charles Glen Kelley, *a*	*Ann Arbor*
James Downing Kelly, *a*	*Chicago, Ill.*
Thomas Gerld Kelly	*Findlay, O.*
Harold Augustus Kesler, *a*	*Hillsdale*
Charles Davidson Kime, *a*	*Atlanta, Ga.*
Gordon Willis Kingsbury, *a*	*Ann Arbor*
Donald Selden Kiskadden, *a*	*Detroit*
William Frederick Koch, *g*	*Detroit*
Charles Brooks Kress	*Three Rivers*
Howard Miller Kugler	*Cincinnati, O.*
Harvey Edward La Londe	*Saginaw*
Ralph David Lamie, *p*	*Ann Arbor*
James William Lampman	*Ann Arbor*
John William Langdon	*Amasa*
Daniel Romeyn Lantis	*Stockbridge*
Hector George Lareau, *m*	*Detroit*
Victor Hugo Lawn, *a*	*New York, N. Y.*
Harriet Lawrence	*Cleveland, O.*
William Arthur Lawrence	*Bellefontaine, O.*
William Earl Laycock	*East Lansing*
Emil John Lederle	*Leland*
Harry Daniel Lee	*Lake Linden*
Arthur Eugene Leen, *l*	*Dayton, O.*
George Michael Lehman, *l*	*Ann Arbor*
Elmer Raymond Lehndorff, *a*	*Rogers*
Florence Rose Lembeck, *a*	*Cleveland, O.*
Mabel Leslie	*Washington, Pa.*
Florence Eleanor Le Valley, *a*	*Saginaw*
Eva Jayne Lewis, *a*	*Howell*
William Liang-Shien Liu	*Tai-Wos, Kiangsi, China*
Charlotte Christine Lloyd, *a*	*Olyphant, Pa.*
Cyrenius Bruce Lockwood, *m*	*Washington*
Marie Louise Loomis	*Grand Rapids*
Emma Loughnane	*Lapeer*
Charles Ruben Lowe, *m*	*Ward, Idaho*
Norman Luneke, *a*	*Grand Rapids*
Amy Lusk	*Petoskey*
Yiu Chu Ma	*New Haven, Conn.*
Robert George McAliley, B.S., *Davidson College*	*Chester, S. C.*
Victoria May McAlmon	*Madison, S. Dak.*
Thyrza McClure, *a*	*Minneapolis, Minn.*
Crawford Ward McCormick, *m*	*Mount Gilead, O.*
Lulu Franck McCreery, *a*	*Ann Arbor*

Alexander McDonald	*Standish*
Clay Christopher Macdonald, *a*	*Detroit*
Hugh Macdonald, *e*	*Ann Arbor*
Walter Byron McDougall	*Romulus*
Anna May McEnrue	*Washington, Pa.*
John Howard McEwan, *a*	*Sault Ste. Marie*
Roy Archie McGarry, *m*	*Traverse City*
Helen Margaret McGuiness	*Chelsea*
Alfred Griffin McIntosh, *a*	*Mobile, Ala.*
Eleanor Irene McKay	*Detroit*
Alonzo Timothy McKean, *a*	*Austin, Tex.*
Florence Elizabeth MacKenzie, *a*	*Detroit*
Cornelia Hempstead McKnight, *a*	*Dubuque, Ia.*
Wilson McLaughlin, *a*	*Muskegon*
Earl McLean	*Lincoln, Neb.*
Harley Jay McMacken	*Mount Pleasant*
Maurice Hutchins McMahon, *l*	*Detroit*
Henry D. MacNaughton	*Grand Rapids*
Mary MacNaughton	*Grand Rapids*
Hugh Brewster McVicker, *a*	*Lisbon, O.*
Walter Garnett Maddox	*Saint Louis, Mo.*
William L'Estrange Mahon, *a*	*Berkeley, Cal.*
Thomas Ambrose Major	*Manistee*
Myron Forman Marsh	*Traverse City*
Alexander Morrison Martin, *m*	*Jenison*
Eugene Oliver Martin	*Detroit*
Lulu Ruth Mason	*Rockwood, Pa.*
Lewis Frederick Mayhood, *l*	*Calgary, Alberta*
Calhoun Allen Mays	*Edgefield, S. C.*
John Merrill	*Detroit*
Woodbridge Metcalf, *a*	*Grosse Pointe Farms*
Bruce Eman Millikin	*Saginaw*
Edward Jeremiah Minock	*Redford*
Francis Blaine Mitchell, *l*	*Baker City, Ore.*
Juan Portuondo Miyares	*Santiago de Cuba, Cuba*
Raymond Charles Moley, Ph.B., *Baldwin University*	*Omsted Falls, O.*
Oscar David Morrill	*Ann Arbor*
Charles Gustavus Morris, *m*	*Ann Arbor*
Edna Belle Morris	*Saint Johns*
Ray Sells Morrish, *m*	*Flint*
Moses Emmett Morton, *a*	*Lowndesboro, Ala.*
Helen Augusta Moses, *a*	*Binghamton, N. Y.*
Mark Henry Mothersill	*Holly*
Rolland Vaughn Mothersill, *a*	*Holly*
Helena Beatrice Munn, *a*	*Ann Arbor*
Hazel Anna Murphy, *a*	*Adrian*
John Desmond Murray	*Grand Rapids*

Irving Christopher Neale	*Fort Smith, Ark.*
Lulu Marie Newton	*Ypsilanti*
Clara Luella Nissly, *a*	*Saline*
Cecelia Noble	*Lowell*
William Howard Norrington	*Bay City*
Robert Lev Novy, *a*	*Ann Arbor*
Edward La Rue O'Brien	*Berrien Centre*
John Edward O'Brien	*Battle Creek*
William E. Olds	*Otisville*
Harold Robert Oliver, *p*	*Lowell*
James Egbert Oliver, *m*	*Steubenville, O.*
Laura Louise Olmsted	*Geneseo, N. Y.*
John Olthouse, *g*	*Grand Rapids*
Chase Salmon Osborn, Jr., *a*	*Sault Ste. Marie*
Jessie Marcia Ostrander, *a*	*Kalamazoo*
Menno Otterbein	*Vestaburg*
George Packard, *l*	*Flushing*
Marion Packard, *a*	*Flushing*
Algernon Arthur Palmer, *a*	*Chelsea*
Walter Seymour Palmer, *l*	*Grand Rapids*
Wilford Edwin Parker	*Gladwin*
Frank George Parks	*Dickinson Centre, N. Y.*
Ernest J. Parr, *p*	*Marion*
Joseph Morgan Parsons	*Grand Rapids*
Jessie Davina Paterson, *a*	*Chatham, Ont.*
Eva Rosamond Pattison, *a*	*Silver Creek, N. Y.*
Gertrude Ain Peet	*Iosco*
Emma Louise Peters, *a*	*Pontiac*
Rupert Peters	*Kansas City, Mo.*
Ethel Pewtress	*Grand Rapids*
John Ruthvan Cameron Peyton	*Columbus, Miss.*
John Phelan, *a*	*Richland*
Leslie Arlington Phillips	*Kalamazoo*
Katherine Pickett	*Croswell*
Alice Pierce, *a*	*Otsego*
Helen Plumb	*Detroit*
Willis Jordan Plummer	*Portsmouth, Va.*
Martha Booth Porter, *a*	*Liberty, N. Y.*
James Henry Pottinger, *a*	*Ann Arbor*
Grace Powers, *a*	*Battle Creek*
Nina Lydia Ransom	*Jonesville*
Arthur August Rather	*Mount Pleasant*
George Stanley Raup, A.B., *Wittenberg College*	*Springfield, O.*
Harry Rawdon, *a, e*	*Marlette*
Ethel Susan Rawson	*Elyria, O.*
James Lewis Reed	*Howell*
William Lee Reed	*Blissfield*

John Foster Reynolds, *a*	*South Bend, Ind.*
Hilton V. Richardson	*Tuscola*
Roy Spence Richardson, *a*	*Alpena*
Elva Lucelia Richart	*Macon*
Leonard Ernest Righter	*Sault Ste. Marie*
Ralph Emerson Rindfusz	*Larwill, Ind.*
Maud Edith Robertson	*Harrisburg, Pa.*
Aaron Robinson	*Baltimore, Md.*
Ann Robinson	*Muskegon*
Lee Vincent Romig	*Ann Arbor*
Stella Davenport Rood	*Ann Arbor*
Charles Chamberlain Root	*Manistique*
May Davis Root	*Manistique*
J. Myrle Rowlader	*Mount Pleasant*
Herbert William Ruport	*Eureka, Cal.*
Agnes Elizabeth Ryan	*Ann Arbor*
Lynndon Bartlett Sager	*Three Rivers*
Annis Salsbury	*Fairfax, Va.*
Edith May Sanford	*Savona, N. Y.*
Jonas Sawdon	*Grand Ledge*
Harry C. Schlatter, *g*	*Fort Wayne, Ind.*
Henry Aloysius Schlink, *a, m*	*New Riegel, O.*
Robert Schneider	*Negaunee*
Bella Frances Schulman, *a*	*Brooklyn, N. Y.*
Harvey Davis Scott, *l*	*Ann Arbor*
Lawrence Edward Scraggs, *l*	*Malden, Mo.*
Abraham Joseph Seltzer, *a*	*New York, N. Y.*
Harley LeRoy Senseman	*Saint Joseph*
Alice Marie Shea	*Saginaw*
Margret Rebecca Shelly, *a*	*Traverse City*
Jane Ann Sherman	*Bennington*
Clifford Warren Shetterly	*Ann Arbor*
Arthur Roy Shigley	*Fremont*
Agnes Anderson Sims	*Troy, N. Y.*
Emory Walter Sink, *a*	*Ann Arbor*
Belle Margaret Siple, *a*	*Ann Arbor*
Ida Sittler, *a*	*Mauch Chunk, Pa.*
Johannes Siveke, *a, m*	*Toledo, O.*
Alice Mary Smith	*Pontiac*
Florence Edith Smith	*Ann Arbor*
Inez Valerie Smith	*Mansfield, O.*
Lillian Blanche Smith	*Capac*
Ralph Benton Snively, *a*	*Lanark, Ill.*
Arthur Emerson Sortore	*Belmont, N. Y.*
Myrta Lulu Stafford, *a*	*Detroit*
Harry Arthur Staiger	*Michigan City, Ind.*
Caroline Matilda Stanchfield	*Ann Arbor*
Chester Otis Staples, *a*	*Wycliffe, B. C.*

Katherine May Stauffer, *a*	*Washington, D. C.*
Edith Alice Steere	*Ann Arbor*
Mary Anna Stein	*Pittsburg, Pa.*
Reinhardt Hermann Stieve, *m*	*South Haven*
Albert Clyde Stitt	*Ypsilanti*
Chester Fowle Straight	*Greenville*
Marion Dayton Streibert, *a*	*Ann Arbor*
Gladys Maree Strelinger, *a*	*Ann Arbor*
George William Sullivan	*Potsdam, N. Y.*
Thomas Lynn Sutton, *a*	*Zanesville, O.*
Albino Zarate Sy Cip, *l*	*Amoy, China*
Changtin Hsuan Tang	*Tintsin, China*
Yee Tang, *a*	*Kiang Si, China*
Joseph Harry Taylor, *l*	*Ann Arbor*
Edmund Clarence Telfer, *a*	*Mimico, Ont.*
Minnie Inez Tennaat	*Mount Pleasant*
Bertha Emogene Thompson, *a*	*Battle Creek*
Hubert LeRoy Thornton	*Horton*
James Kelm Thornton	*Barryton*
Allman Avon Todd, *a*	*Kalamazoo*
Robert Henry Todd, Jr.	*San Juan, Porto Rico*
Robert Morrell Toms, *l*	*Chicago, Ill.*
Martin B. Travis, *g*	*Clarkston*
Jennie Trebilcock	*Ishpeming*
Cyrus Alfred Browning Tremper, *a*	*Ann Arbor*
Edith Mildred Knights Tremper, *a*	*Ann Arbor*
Vanita Trovinger	*Colorado Springs,Colo*
John Arthur True, *a, h*	*Ann Arbor*
Frances Bailey Turner	*Grand Rapids*
Mary Alice Ulrich	*Ceresco*
Audrey Philleo Updike	*Farmington, Mo.*
Clara Elma Vandersall	*Kenmore, O.*
Buell Hitchcock Van Leuven	*Mount Pleasant*
Rosa Albertine Vatter	*Monee, Ill.*
Harry Ellsworth Vernon, *l*	*Millersburg, Ind.*
William R. Vis, *a*	*Zeeland*
Clarence Vliet	*Leslie*
Fred Burkhart Wahr, *a*	*Ann Arbor*
Roy Ellis Waite	*Dexter*
Albert J. Walcott	*Zeeland*
Marie Virginia Wanzeck	*Ann Arbor*
Herbert George Warne, *a*	*Ypsilanti*
Rose Mae Washburn	*Ada*
Florence Savannah Webb	*Angola, Ind.*
Oscar Webber, *a*	*Detroit*
Oscar Friedolin Weber	*Belleville, Ill.*
Mary Louise Welton, *a*	*Grand Rapids*
Henry Lee Wenner, Jr., *a, m*	*Tiffin, O.*

Harold Arnold Wentworth, *a*	*Bay City*
Clarence Jay West, *g*	*Franklin*
Eleanor Pauline Wheeler, *a*	*Indianapolis, Ind.*
Paul Albert Wheelock, *a*	*Owatonna, Minn.*
Charles Cephas Whistler	*Spring Harbor*
Edward Whitney	*Cadillac*
Beulah Whitsit	*Ann Arbor*
Johannes Albertus Wiggers	*Gaylord*
Walter Quincy Wilgus, *a*	*Ann Arbor*
Kittie Louise Williams, *a*	*Williamston*
Zella Mae Williamson, *a*	*Ann Arbor*
Gretta Rose Wilner, *a*	*Pontiac*
Annie Jensen Wilson	*Louisville, Ky.*
Laura Norton Wilson	*Shelby*
Eber Hugh Wisner, *p*	*Ann Arbor*
Adelbert Merrett Wolsworth, *a*	*Fremont*
Allen Fred Wood, *a*	*Ann Arbor*
Jack Huston Wood	*Monticello, Ark.*
Adrian Ardie Worum, *a*	*Ironwood*
Florence Wylie	*Shelby*
Alice Yaple, *a*	*Mendon*
Gleo York	*Niagara Falls, N. Y.*
Nellie Fay York	*Niagara Falls, N. Y.*
Lynn Jesse Youngs	*Burnside*
José Julian Zamora, *p*	*Aquadilla, Porto Rico*
Katherine Minaker Zeidera	*Harrisburg, Pa.*
Arthur Ray Zimmer	*Grand Rapids*

DEPARTMENT OF ENGINEERING

NAME	RESIDENCE
Henry Carter Adams, Jr., *a*	*Ann Arbor*
Leon Barton Alexander	*Penn*
Albert Persons Allen, *e*	*Benton Harbor*
David Way Allerdice, *e*	*Indianapolis, Ind.*
Curtis Beall Backus, *e*	*Glencarlyn, Va.*
Edward Kennedy Bacon	*Denver, Colo.*
Clinton Buell Baker, *e*	*Chicago, Ill.*
Charles Nelson Ballentine, *e*	*Port Huron*
James MacAllen Ballentine, *e*	*Port Huron*
Hermann Banbrook, *e*	*Medina, N. Y.*
Robert Barnard, *e*	*Frederick, S. Dak.*
Gladeon Marcus Barnes, *e*	*Hastings*
*Robert Anthony Pelham Barrier	*Detroit*
Charles Eugene Bassett, *e*	*Independence, N. Y.*
Owen Warner Bauer, *e*	*Los Angeles, Cal.*
James Robert Bazley, *e*	*Oswego, N. Y.*

***Deceased.**

Dwight O. Becker, *e*	*Jackson*
Edward Leslie Behrens	*Muskegon*
Verner A. Belcher, *e*	*Milan*
Carroll Guernsey Bennett, *e*	*Chicago, Ill.*
Maurice Darius Bensley, *e*	*Hamburg, N. Y.*
William Russell Bigelow, *e*	*Joliet, Ill.*
Remsen Bishop, *e*	*Detroit*
Grover Cleveland Blalock	*Wingo, Ky.*
Matthew Rhodes Blish, *e*	*Kewanee, Ill.*
Myron Blodgett, *e*	*Bay City*
John Cowan Bogle, Jr., *e*	*Danville, Ky.*
Edwin Booth, *e*	*Dallas, Pa.*
Harry Eugean Brelsford, *e*	*Niles*
William Nelson Brewer, *d*	*Springwater, N. Y.*
John Henry Bringhurst, *e*	*Houston, Tex.*
Ralph Edgar Brown, *e*	*Manistique*
Harold Sidney Browne, *e*	*Bay City*
Arthur Wilson Bruce, *d*	*Kalamazoo*
Robert Louis Buhrman, *e*	*Cincinnati, O.*
Charles Christian Bundschu, *e*	*Independence, Mo.*
Edward Morris Burd, *e*	*Grand Rapids*
Warner Bushnell	*Mansfield, O.*
Jesse Thomas Caldwell, *e*	*Chicago Heights, Ill.*
Collis Ormsby Campbell, *e*	*Louisville, Ky.*
Herbert Vincent Campbell	*Ann Arbor*
Orrin Otis Carpenter, *e*	*Port Huron*
John Michael Carroll, *e*	*Avon, N. Y.*
Ray J. Carroll, *e*	*Richmond, Ind.*
Rogers Case	*Bristol, R. I.*
Frank Edward Cassidy	*Worcester, Mass.*
Clarence William Chaddock	*Benton Harbor*
Thomas Chandler, *e*	*Sault Ste. Marie*
Franklin Henry Chapin, *e*	*Vanderbilt*
Harry Seymour Clague	*Painesville, O*
David Daniel Clarke, *e*	*Grand Rapids*
William Thomas Lee Cogger, *e*	*Navarre*
Burr Collyer, *e*	*Union City*
Raymond Weaver Colman, *e*	*Middleport, N. Y.*
Alfred Dunlap Conant, *a*	*Plainfield, N. J.*
Herbert Luther Connell, *e*	*Ann Arbor*
Walter Louis Connelly, *e*	*Saginaw*
Walter Sherman Cookinham, *e*	*Utica, N. Y.*
Remie Cools	*Detroit*
Claude H. Coppes, *e*	*Nappanee, Ind.*
Arthur Benjamin Cornwell, *a*	*Saginaw*
Emery Cox, *e*	*Brightwood, D. C.*
Grauley Stewart Crane, *e*	*Port Huron*
Walter Gardiner Crawford	*Seneca Falls, N. Y.*

Samuel Watkins Cushman, *e*	*Ann Arbor*
Edward James Dahill	*New Bedford, Mass.*
Frank Carl Damskey, *e*	*Grand Rapids*
Leo Harvey Darrow, A.B., *e*	*Ann Arbor*
Raymond Cornwell Darrow, *e*	*Ann Arbor*
Orley Hanson Dawson, *e*	*Muskegon*
George Rankin Dewey, *e*	*Shelby*
Alfred Osmond Dicker, *e*	*Chicago, Ill.*
Silas Harold Dickinson, *e*	*Fennville*
Frank Earle Dodge, *e*	*Wichita, Kans.*
George Lucas Dresser, *e*	*Port Huron*
Alfred Clayton Duckett	*Ann Arbor*
William Duncan Dudley	*Alba*
Fred Victor Dunlap, *e*	*Beaver Falls, Pa.*
Scott B. Dunlap, *e*	*Medina, N. Y.*
Richard Joseph Dunne, *e*	*Chicago, Ill.*
William Dyer, *e*	*Argonia, Kans.*
Erwin Boyd Edwards, *e*	*Clarkson, N. Y.*
Howard Pierpont Edwards	*Ann Arbor*
Harry Epstein	*Grand Rapids*
Lewis Alden Estes, *e*	*Richmond, Ind.*
John Lathrop Ewing, *e*	*Chicago, Ill.*
William Leonard Eyke, *e*	*Muskegon*
Guillermo Fernandez, *e*	*Mexico City, Mex.*
Arthur Kaye Fischer, *e*	*Chicago, Ill.*
Leonard Flaa	*Ishpeming*
Reuben John Flaherty, *e*	*Detroit*
Eugene Allen Flanigan, *e*	*Fredonia, N. Y.*
John Wilkinson Fletcher, *e*	*Centreville*
Albert Robinson Ford	*Jackson*
Howard Stowell Fox, *e, a*	*Detroit*
Richard Edmund Fox	*Black River, N. Y.*
Kanaye Fujita, *e*	*Tokyo, Japan*
Elmer Guy Fuller	*Detroit*
Roscoe Marshall Gage, *e*	*Toledo, O.*
Martin Newton Gaines, *e*	*Kansas City, Mo.*
Truman Alfred Gamon, *e*	*Wheaton, Ill.*
Joseph K. Gannett, *e*	*Wellington, O.*
Ladislaus Francis Garsztecki, *e*	*Detroit*
William Frederick Gauss, *e*	*Ann Arbor*
James Ralph Gibson, *e*	*Northville*
William Charles Giffels, *e*	*Saint Johns*
Leslie Drew Goddard, *e*	*Ann Arbor*
Rocco Joseph Gorman, *e*	*Saginaw*
Douglas Arnold Graham	*Chicago, Ill.*
Simpson William Green, *e, p*	*Detroit*
Ambrosio Aurelio Grillo R., *e*	*Santiago, Cuba*
Carl Emil Gundlach, *e*	*Buffalo, N. Y.*

Kent Wigton Gurney	*Hart*
Ralph Douglas Gutchess, *e*	*Ann Arbor*
John Wilson Hacker, *e*	*Kalamazoo*
Laurence Ivan Hale, *e*	*Lyons*
Charles Watts Hall	*Ann Arbor*
Howard Shields Hall	*Kansas City, Mo.*
Louis Phillips Hall, Jr.	*Ann Arbor*
Paul Shepard Hamilton, *e*	*Milwaukee, Wis.*
Robert Stevens Hammond, *e*	*Chicago, Ill.*
Alfred W. Hanson, *e*	*Racine, Wis.*
William Harold Harden	*Martin*
Raymond Wickham Harding	*Elmira, N. Y.*
Harold James Harrington, *e*	*Ann Arbor*
Harry Lewis Harris	*Chicago, Ill.*
Charles Ellett Hart, *e*	*Bay City*
William Alfred Hart, *e*	*Fredonia, N. Y.*
Harold Ira Haskins, *e*	*Chicago, Ill.*
Samuel Franklin Hawkins	*Salem, O.*
Charles James Haynes, *e*	*Cadillac*
Osmond Doré Heavenrich, *e*	*Detroit*
Theodore Charles Heinecke, *e*	*Merlebach*
John Wesley Hendricks, *e*	*Philadelphia, Pa.*
Francis Ignatius Hetherington, *e*	*Detroit*
Ralph Howard Hidey, *e*	*Mount Pleasant*
Edwin Adams Hull, *e*	*Ann Arbor*
Cleaveland Muir Hunt, *e*	*Detroit*
Walter J. Hurlbut	*Rochester, N. Y.*
August Frederick Hutzel, *e*	*Ann Arbor*
Lawrence Hallock James, *e*	*Ypsilanti*
Andrew Douglas Jamieson, *e*	*Detroit*
Albert Barnett Jones, *e*	*Clayville, N. Y.*
Charles Bernard Jordan, *p*	*Morrice*
*Floyd Harvey Keeler, *e*	*Frederick, S. Dak.*
Harland Mease Kerschner	*Spencer, N. C.*
Carl Arthur Kiefer	*Detroit*
Herman Guy Kiefer, *e*	*Detroit*
George Solon Kiehle, *e*	*Dansville, N. Y.*
Arthur Kingston, *e*,	*Buffalo, N. Y.*
Lewis Thayer Kniskern, *e*	*Hastings*
Philip Wheeler Kniskern, *e*	*Hastings*
Ernest Kremers, *e*,	*Holland*
Edwin Krieghoff, *e*,	*Detroit*
Edward H. Kruckemeyer	*Cincinnati, O.*
Eugen Kuebler, *e*	*Ann Arbor*
Emil Kumbo, *e*	*Calumet*
Charles William Kynoch, *e*	*Saint Ignace*
Cecil Ralph Lambert, *e*	*Detroit*

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*Deceased.

Ira Henry Lecklider, Jr.	*Toledo, O.*
William McIlwaine Lee, *e*	*Detroit*
Walter Edward Lentz, *e*	*Detroit*
Alick Levinson, *e*	*Charlevoix*
Bryce Lewis, *e*	*Jamestown, N. Y.*
Allen Clyde Linsday	*Litchfield*
Frank Harman Linthicum, *e*	*Washington, D. C.*
James John Livingston	*Menominee*
Seabourn Rome Livingstone, *e*	*Detroit*
James Harry Lobban, *e*	*Atlas*
Albert Harry Lockwood, *e*	*Ann Arbor*
Lawrence William Long, *e*	*Jackson*
Royal Kerch Long, *e*	*Canton, O.*
Thompson Lothrop, *e*	*Buffalo, N. Y.*
Arthur Caleb Loud, *e*	*Au Sable*
Alexander Nelson Lund, *e*	*Willard, N. Y.*
James Everingham McChesney. *e*	*Toledo, O.*
Michael Paul McCormick, *e*	*Rexville, N. Y.*
Harry Maurice Macfarlane, *e*	*Detroit*
Joseph Roy McGee	*Detroit*
Howard Leadley McGregor, *e*	*Detroit*
Edward Allen Mack, *e*	*Aurora, Ill.*
Donald Joseph McLeod, *e*	*Rexton*
Lawrence Ross McNamee. *e*	*Gary, Ind.*
William Godfrey McNeil	*Detroit*
Joe Magidsohn, *e*	*Elkton*
Ralph Elbert Mahaney, *e*	*Owosso*
Robert Loren Manville, *e*	*Fairpoint, S. Dak.*
Irving Victor Maurer, *e*	*Saint Louis*
Donald Curtis May, *e*	*Ann Arbor*
Henry William Meier, *e*	*Detroit*
Henry Love Melton	*Dillon, Mont.*
William George Menery, *e*	*Yale*
Clarence August Mette, *e*	*Hancock*
John Allen Miller	*Gladstone*
Ray Andrew Miller	*Clarence. N. Y.*
Sidney Clark Mitchell	*Benton Harbor*
Walter Mann Mitchell	*Philadelphia, Pa.*
William Churchill Mitchell, *e*	*New York, N. Y.*
Joseph Howard Moore, *e*	*Mount Clemens*
Chester Mott, *e*	*Metamora*
John Mortimer Mulholland, Jr., *e*	*Pittston. Pa.*
Clair Arvin Myers, *e*	*Gobleville*
Isaac Neger, *e*	*East Newark, N. J.*
Carlton Lester Nelson, *e*	*Muskegon*
Perry Matthias Nicholson, *p*	*Erie, Pa.*
Louis Clarence Nodell, *e*	*Coldwater*
J. William Nord, *e*	*Iron Mountain*

Glenn Harrison Norquist, *e*	*Jamestown, N. Y.*
William Howard Norrington	*Bay City*
Julian Stanislaus Nowakowski, *e*	*Detroit*
Archie Oakes	*Lyons*
Yasuro Oka, *e*	*Osaka, Japan*
Marquis Elwood Older, *e*	*Adrian*
Eri Olmstead, *e*	*Portland*
Lee Sedwick Olney	*Fayetteville, Ark.*
Roy Herbert Osmun, *e*	*Holly*
John Philip Otte, *e*	*Grand Rapids*
Herman G. Ottmer, *e*	*Ann Arbor*
Frank Silas Packard, Jr., *e*	*Sturgis*
Ralph Hildreth Pardee, *e*	*Pontiac*
Harry Emmons Parsons, *e*	*Dowagiac*
William Arsene Payne, *e*	*Akron, O.*
Fred Pardington Peel	*Ann Arbor*
John Rex Pemberton, *e*	*Ann Arbor*
Samuel Richards Penfield, *e*	*Northville*
Dulcidio de Souza Pereira, *e*	*Sao Paulo, Brazil, S.A.*
Harry Richardson Perkins, *e*	*Ann Arbor*
Glenn Louis Perry	*Chillicothe, O.*
Harold Bradley Phillips, *e*	*Port Huron*
James Bernard Pierce, *e*	*Butte, Mont.*
Walter Alexander Pillans, *e*	*Owosso*
Walt Alfred Plumb, *e*	*Holly*
William Henry Pollard	*Seneca Falls, N. Y.*
Walter Clark Pomeroy, *e*	*Kalamazoo*
Basil Franklin Pontey	*Detroit*
Earle Moore Porter, *e*	*Detroit*
James Henry Pottinger, *a*	*Ann Arbor*
George Frederic Pushaw, *e*	*Washington, D. C.*
William Clifton Randall, *e*	*Detroit*
Carl Frost Raver, M.D., *e*	*Ann Arbor*
Clarence Nelson Ream	*Ann Arbor*
Howard Clarence Reed, *e*	*Dunkirk, N. Y.*
Floyd Earle Remington	*Auburn, N. Y.*
Walter Meredith Rennie	*Niles*
Harold Chamberlain Richardson, *e*	*Detroit*
Edward Hodges Robie, *e*	*Washington, D. C.*
Charles Merwin Rodi, *e*	*Calumet*
Carl Edgar Rohde, *e*	*El Reno, Okla.*
Karl Rose, *e*	*Pierre, S. Dak.*
Saul Saulson, *e*	*Detroit*
Fred Morgan Sawin, *e*	*Ann Arbor*
Ralph Thomas Sayles, *e*	*Flint*
Arthur Jay Schamehorn, *e*	*Jackson*
John Gallus Schaub, *e*	*Whiting, Ind.*
Stanley James Schooley, *e*	*Brisbane, Queensland, Australia*

Arthur Ferdinand Schreiber	*Michigan City, Ind.*
Bruno Schroeter	*Detroit*
Harvey Neeb Seney, *e*	*Coldwater*
Frederick Warner Seymour	*Manistee*
Frank Thomas Shaw, *e*	*Redford*
William Hemingway, Skinner, *e*	*Baltimore, Md.*
Fred Stanley Slagle, *e*	*Washington Court House, O.*
Harrison Arthur Small, *e*	*Grand Ledge*
Leland Ward Smith, *e*	*Amsterdam, N. Y.*
Walton Spaulding Smith, *e*	*Evanston, Ill.*
Harry Alfred Snow, *e*	*Dearborn*
Shirley Clifford Snow, *e*	*Chicago, Ill.*
Arthur Emerson Sortore	*Belmont N. Y.*
Benjamin William Sprau, *e*	*Erie, Pa.*
Howard Reynolds Stearns, *e*	*Detroit*
Clement Caleb Steck, *e*	*Lorain, O.*
Lafayette Farrar Stephenson, *e*	*Toledo, O.*
Leigh James Stephenson, *e*	*Port Huron*
Herbert Augustus Stevenson	*Muskegon*
Elmer E. Stiff, *e*	*Fenton*
Lewis Cleveland Stockdale	*Stockdale, Pa.*
Charles Edwin Stone, *e*	*Allegan*
George Eliott Sturt	*Flint*
Floyd Daniel Sutherland	*Metamora*
Otho Monroe Sutherland, B.S. (M.E.), *e*	*Ann Arbor*
Roy Stanley Swinton, *e*	*Calumet*
Harold Hughes Sykes	*Bellevue*
Gordon Tarbell	*Rushford, N. Y.*
Earl D. Taylor	*McConnelsville, O.*
Morton Emery Thierwechter, *e*	*Oak Harbor, O.*
Charles Ralph Tiebout, A.B., *Olivet College*	*Ypsilanti*
Benjamin Alvord Towar, *e*	*Detroit*
Glenn Lewis Tower, *e*	*Ann Arbor*
Walter Howell Triplett, *e*	*Macon*
Thomas J. Turk	*Pontiac*
Waldo Collins Twitchell, *e*	*East Las Vegas, N. M.*
Don Orville Tylee, *e*	*Youngstown, O.*
Frank Sherman Upham	*Ann Arbor*
Augusto Valenzuela, *e*	*Bogota, Colombia, S.A.*
Edward Frank Vidro, *e*	*Grand Rapids*
Harrison Morton Wadsworth, *e*	*Saint Joseph*
William Julius Wagner, *e*	*Grand Rapids*
Albert Smalley William Walker, *e*	*Buffalo, N. Y.*
Alexander Edward Walker, *e*	*Detroit*
Fred Mallett Walker, *e*	*Saint Ignace*
Howard Cora Walker, *e*	*Saint Ignace*

James Herbert Walker, *e*	*Detroit*
Frank Ernest Wall, *e*	*Ann Arbor*
Marion Pryor Wall	*South Pittsburg, Tenn.*
Daniel Charles Walser, *e*	*Detroit*
Roy Elsen Ward, *e*	*Ann Arbor*
Albert Ellery Wardwell, *e*	*Ann Arbor*
William Stephen Wasmund, *e*	*Detroit*
James Mark Wenley, *e*	*Glasgow, Scotland*
Charles Spurgeon Wiggam	*West Lafayette, Ind.*
Forrest Earl Wilson, *e*	*Caledonia*
James Bowman Wirt	*Greensburg, Ind.*
Chester William Wright, *e*	*Niagara Falls, N. Y.*
Chen Ku Philip Yao, *e*	*Hankow, China*
Arthur Wynn Yates, *e*	*Detroit*
William Frederick Zabriskie, *e*	*Detroit*

DEPARTMENT OF MEDICINE AND SURGERY

NAME	RESIDENCE
Nelson Abbott, M.D.	*Lake City*
Theodore Carl Henry Abelmann	*Elgin, Minn.*
James Harlan Anderson, *m*	*Manistee*
Edwin Elliott Armstrong, M.D., *Toledo Medical College*	*Sylvania, O.*
Lloyd Lorenzo Arnold	*Fort Worth, Tex.*
Edward Murray Auer, *m*	*Irondequoit, N. Y.*
Leonard Chester Backus, M.D.	*Ann Arbor*
Rudolph Artilles Bartholomew, A.B., *m*	*Valparaiso, Ind.*
William Frederick Beyer, *m*	*Marquette*
Carroll Gideon Boll, B.S., *University of Nashville*	*Fountain City, Tenn.*
Carl Vincent Bovard, *m*	*Butte, Mont.*
Hugo Otto Brown	*Kelleys Island, O.*
Donald Archibald Cameron, *m*	*Traverse City*
Glenn Blish Carpenter, *m*	*Big Rapids*
Albert Edward Catherwood, *m*	*Bay City*
Sara Thomasina Chase	*Traverse City*
Charles Emmett Condon, *m*	*Cassopolis*
Harry Linford Cooper, *m*	*Niles*
Howard Hasting Cummings, *m*	*Wellsville, N. Y.*
Fernando de Juan, Jr., *m*	*San Juan, Porto Rico*
Leslie Higley Stark De Witt, *m*	*Spring Lake*
Stuart Lloyd De Witt, *m*	*Spring Lake*
William Harrison Dickson, *m*	*Ann Arbor*
Marion Sylvester Dooley, A.B., *University of Missouri*	*Syracuse, N. Y.*
Charles Borromeo Dugan, *m*	*Brinckerhoff, N. Y.*

Karl Coulson Eberly, *m*	*Perrysburg, O.*
Arthur Ferdinand Fischer, B.S., *German English College, Galena, Ill.,* M.D.	*Hubbell*
Jeremiah Charles Flynn, *m*	*Port Byron, N. Y.*
Raynor Spalding Freund, M.D.	*Butte, Mont.*
George Wilfred Gannon, *m*	*Ann Arbor*
Placida Vera Gardner, A.B., *m*	*Los Angeles, Cal.*
Theodore John Gaul	*Pinckney*
Frank B. Gerls, *h*	*Ann Arbor*
William Francis Gidley, B.S., Ph.C.	*Holly*
Zina Leslie Gilding, *h*	*Ann Arbor*
Burt F. Green, A.B , *Hillsdale College,* M.D.	*Hillsdale*
Idris Briggs Gregory, M.D.	*Ontario, Cal.*
Lawrence George Grossman, *d*	*Ann Arbor*
Don Vilrette Hargrave, A.B., *m*	*Ann Arbor*
Joseph Daniel Heitger, A.B., *Indiana University,* M.D.	*Bedford, Ind.*
Harry Galloway Herring, *m*	*Georgetown, Ky.*
Paul Wiley Hildebrandt, A.B., *Wilmington College, h*	*Ann Arbor*
Lyle Steen Hill, B.S. (E.E.), *m*	*Berlin Heights, O.*
William Henry Hillman, *m*	*La Porte, Ind.*
John Thomson Hodgen, *m*	*Saint Louis, Mo.*
Jenny Mabel Hoiland, *m*	*Valley City, N. Dak.*
Wallace Edwin Hopkins, *m*	*Marion Center, Pa.*
Harold Stacey Hulbert	*Oak Park, Ill.*
Sobei Ide, M.D., *Sai Sei College, m*	*Nagano, Minamisaku, Kawakemi, Japan*
Arthur Curtis Jones, *m*	*Chinook*
Charles Bernard Jordan, *p*	*Morrice*
Warren Howe Judd	*Detroit*
Harry Neal Kerns, *m*	*Berkeley, Cal.*
George Krahn, *m*	*South Kaukauna, Wis.*
Leigh Seward Krake, A.B., *University of Nebraska*	*West Point, Neb.*
Alfred La Bine, *m*	*Larium*
Hector George Lareau, *m*	*Detroit*
Mildred Thressa Lee, *h*	*Rochester, N. Y.*
Cyrenius Bruce Lockwood, *m*	*Washington*
Frederic Morris Loomis, M.D., *m*	*Ann Arbor*
Charles Ruben Lowe, *m*	*Ward, Idaho*
William Lyon, M.D., *Western Reserve University*	*Grass Lake*
Robert George McAliley, B.S., *Davidson College*	*Chester, S. C.*
Joseph Henry McCann, *h*	*Munith*
Roy Archie McGarry, *m*	*Traverse City*

Harry McNeal, B.L., M.D.	*Ravenswood, La.*
Alexander Morrison Martin, *m*	*Jenison*
John Edwin Martin, B.S., *Kansas Agricultural College*	*Waverley, Kans.*
Frank Augustus Mercer, *m*	*Pinckney*
Donald Lee Miller	*Bellefontaine, O.*
Frederick Fremy Miller	*Peoria, Ill.*
Louis Edwin Moon, *m*	*Traverse City*
Ernest Lutner Morgan	*Clyde, N. C.*
Charles Gustavus Morris, *m*	*Ann Arbor*
Ray Sells Morrish, *m*	*Flint*
John Francis Murphy, M.D.	*Detroit*
Maurice Louis Murphy, *m*	*Providence, R. I.*
Herbert Nathan Thomas Nichols, *m*	*Ann Arbor*
James Egbert Oliver, *m*	*Steubenville, O.*
Fred W. Palmer, M.D.	*Washington, D. C.*
Alex H. Pearson, M.D.	*Hamburg*
Axel Alexander Pesonen, *m*	*Hancock*
Daniel Edgar Pugh, Jr., *m*	*Elmira, N. Y.*
David Lindsey Randall	*Durham, N. H.*
John Stephen Reardon, *m*	*Grand Rapids*
Clement Edwin Reed, *m*	*Ann Arbor*
Elias Wilbur Reed, B.S., *Kansas Agricultcral College,* M.D.	*Holton, Kans.*
William Lewis Rhonehouse, *h*	*Maumee, O.*
Don F. Russell	*Paulding, O.*
William Waldo Schairer, *h*	*Ann Arbor*
Ernest Schaetzle, *d*	*Waldenburg, Switzerland*
Harry Burke Schmidt, *m*	*Niles*
Otto Henry Schwarz	*Saint Louis, Mo.*
William Earl Smith, *m*	*Manistee*
Samuel McCoy Sproat, *m*	*Chillicothe, O.*
Paul Jacob Stueber, *m*	*Lima, O.*
Elisha John Tamblyn, *m*	*Hancock*
Frank Willard Tufts	*Milwaukee, Wis.*
Peter Vermeulen, *m*	*Zeeland*
Hugh Marshall Ware, *m*	*Bozeman, Mont.*
Don Dickenson Weaver, *m*	*Charlotte*
Carl Vernon Weller, A.B., *Albion College, m*	*Saint Johns*
Philip Douglas Werum, *m*	*Toledo, O.*
Wayne Franklyn Whealdon, *m*	*Shedds, Ore.*
Ralph Emerson Wiley, m	*Sullivan, Ill.*
Gordon Fay Willey, A.B., *m*	*Ann Arbor*
Frank Earl Williams, A.B., *University of Wisconsin, m*	*Orchard Lake*
John Henry Wright, *p*	*Ithaca, N. Y.*

DEPARTMENT OF LAW

NAME	RESIDENCE
Mont Leslie Ailey, A.B., *Grove City College*	*New Castle, Pa.*
William Leon Albert, *l*	*Ann Arbor*
Percy Alexander, *Graduate U. S. Military Academy*	*Shreveport, La.*
Carl Lewis Altmaier	*Lansdowne, Pa.*
J. Arthur Andrus, *l*	*Hastings*
William H. Batson, A.B., *Antioch College*	*Yellow Springs, O.*
Theodore Gilmore Bilbo	*Poplarville, Miss.*
Jessee Lee Billingsley	*Tallahassee, Fla.*
Henry J. Bischoff, A.B., *University of Kansas*	*Washington, Kans.*
William Wallace Blackney	*Flint*
James Branch Bocock, LL.B., *Georgetown University*	*Portland, Ore.*
Allen McKee Bond, A.B., *Princeton University, l*	*Lawrenceburg, Ky.*
Preston Warren Bradley	*Flint*
Hubert Aloysius Brennan	*L'Anse*
Starkey Young Britt	*Washington, D. C.*
Baird Broomhall, A.B., *Yale University*	*Troy, O.*
Paul Rankin Brown, *l*	*Sharpsburg, Ky.*
Evert Marion Carver, *l*	*Michigan City, Ind.*
Edward Ralph Case, *l*	*Franklinville, N. Y.*
Iden Edwin Chatterton	*Ann Arbor*
Samuel Leslie Clark	*New Castle, Pa.*
Alois Richmond Clarke, *l*	*Los Angeles, Cal.*
James C. Cloyd, B.L., *Jefferson School of Law*	*Manchester, Ky.*
Glenn Copple, *l*	*Centralia, Ill.*
Jesse Edward Crosby, *l*	*Holbrook, Ariz.*
John Cuffe	*Eureka, Mont.*
Morgan Harley Dake, A.B., *Cornell College*	*Epworth, Ia.*
James Henry Daly, *l*	*Long Beach, Cal.*
Edward Lee Davis, LL.B., *Cumberland University*	*Lake Village, Ark.*
Charles Douglass Dawson, B.S., *Antioch College*	*Coshocton, O.*
Courtland Stark Dines	*Denver, Colo.*
Tyson M. Dines, A.B., *Yale University*	*Denver, Colo.*
George Eleazer Dixon, *l*	*Toledo, O.*
John Arnold Doelle, A.B.	*Houghton*
Eugene Gerald Donohoe, *l*	*O'Neill, Neb.*
Walter Newcomer Doub, A.B., *Washington and Lee University*	*West Beaver Creek, Md.*

Martin Joseph Doyle, *l*	*Clio*
†Louis Stephen Dudley, *a*	*Detroit*
Jeroue Josiah Edmundson, *a, l*	*Birmingham, Ala.*
Charles Watt Erickson, B.S., *Washington and Jefferson College*	*Washington, Pa.*
Alvin Eleazar Evans, A.B., *Cotner University,* A.M., *University of Nebraska,* Ph.D.	*Bethany, Neb.*
Irving LeRoy Evans, *l*	*Baltimore, Md.*
John Fitzgerald	*Janesville, Wis.*
Frank Daniel Foley, *l*	*Columbus, Ga.*
Garner Fraser	*Clinton, Ark.*
May Freligh	*Flint*
Frank Maurice Frisby	*Bethany, Mo.*
Glenwood Charles Fuller	*Otisville*
Paul Victor Gadola, *l*	*Ann Arbor*
Samuel Hill Gardner, A.B., *Grove City College*	*Tarentum, Pa.*
James Henry Gillard, *l*	*Ann Arbor*
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Percy Elhanan Gleason, A.B., *Dartmouth College*	*Everett, Mass.*
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James Blaine Greenfield	*Flushing*
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Beverly Winslow Howe, A.B., *University of Tennessee, l*	*Carrollton, Ky.*
Michael Terrance Hughes, *l*	*Ann Arbor*
John Carpenter Hull, A.B., *Bowdoin College*	*Leominster, Mass.*
John Kendrick Hutton, A.B., *Richmond College*	*Roanoke, Va.*
Virgil Hardin Jaudón, LL.B., *Kansas City School of Law*	*Kansas City, Mo.*
James Fitzgerell Jones, A.B., *William and Mary College*	*Alexandria, Va.*
Richard Thomas Jones	*Duluth, Minn.*
Max Kahn, A.B., *l*	*Ann Arbor*

Jacob Hyman Kaplan, A.B., *University of Cincinnati*, Ph.D., *University of Denver*	*Selma, Ala.*
Clarence Post Keck, *l*	*Fond du Lac, Wis.*
Paul Howard King	*Lansing*
Frederic Garrabrant Kiser, B.L., *Waynesburg College*, B.S., *Columbia University*	*Brookside, N. J.*
James Ray Klots, *l*	*Palouse, Wash.*
John Jacob Koski, *l*	*Ann Arbor*
John William Landrum, B.L., *Mercer University*	*Carnesville, Ga.*
Laurence Edwin Langdon, *l*	*Pueblo, Colo.*
George W. Swift Lathers	*Ypsilanti*
John Fletcher Lewis, A.B.	*Seattle, Wash.*
William Lewis	*London, Ky.*
Jay Mede Lininger, A.B., *Westminster College*	*Mercer, Pa.*
Margaret Chapin Lininger, A.B., *Westminster College*	*Mercer, Pa.*
James B. Linsday, *l*	*Litchfield*
James Wilbur McCandless, A.B.	*Dayton, O.*
Ward Carpenter McCroskey, A.B., *University of Kansas*	*Wellington, Kans.*
John Russell McDavid, *l*	*Irving, Ill.*
Henry Ronald MacGillis, *l*	*Harrisville*
Earl Peregoy McGinnis, *l*	*Caldwell, O.*
Carl Hugh McLean, A.B., *l*	*Lansing*
Maurice Hutchins McMahon, *l*	*Detroit*
Waldo Emerson Marion, A.B., *University of Georgia*	*Cornelia, Ga.*
Thomas Mercer Marshall, A.B., *Yale University*	*Pittsburg, Pa.*
Calhoun Allen Mays, A.B., *College of Charleston*	*Edgefield, S. C.*
Charles Edward Merrill	*West Palm Beach, Fla.*
Carl Ludwig William Meyer	*Hamburg, Germany*
Francis Blaine Mitchell, *l*	*Baker City Ore.*
Raymond Charles Moley, Ph.B., *Baldwin University*	*Olmstead Falls, O.*
Arthur McRae Morrison, *a*	*Wayne*
Carl Downing Mosier, *l*	*Paw Paw*
Andrew Leach Nichols, A.B., *Dartmouth College*	*Sudbury, Vt.*
Robert Emmet Mark Nolan, *l*	*Birmingham, Ala.*
Albert William Norcop	*Separ, N. M.*
John Thomas O'Neill	*New London, Conn.*
Ralph Mason Ostrander, *l*	*Painesville, O.*

Sidney Rollin Overall, A.B., *Yale University*	*Saint Louis, Mo.*
Thomas Garland Parham	*Pine Bluff, Ark.*
Francis Byron Parker, *l*	*Sioux Rapids, Ia.*
Herbert Patterson, B.S., *Ohio Wesleyan University*	*Newark, O.*
William David Patterson	*Lebanon, Tenn.*
Roy Harry Pickford	*Washington, D. C.*
John Thomas Pigott, A.B., *Yale University*	*Helena, Mont.*
David Pipes, Jr., A.B., *Washington and Lee University*	*New Orleans, La.*
Russell Hobbins Porter, A.B., *University of Oxford*	*Oxford, England.*
Horace Edson Potter	*Flint*
Jeremiah Harrison Powell, *l*	*Richmond, Ky.*
Ralph Ray Price, A.B., *Baker University;* A.M., *University of Kansas*	*Manhattan, Kans.*
George Stanley Raup, A.B., *Wittenberg College*	*Springfield, O.*
Edward Turner Rice	*Birmingham, Ala.*
Clarence Adrian Robertson	*Moab, Utah*
Custer Enoch Ross, *l*	*Silverton, Ore.*
Dean Ernest Ryman, *l*	*Fitzgerald, Ga.*
Hermon Sackett, A.B., *Washington and Jefferson College*	*Edinboro, Pa.*
Shelby Brewer Schurtz, A.B., *l*	*Grand Rapids*
Gray Secor	*Longmont, Colo.*
Charles A. Smith, *l*	*Detroit*
Morgan Estes Snedecor, A.B., *University of Alabama*	*Tuscaloosa, Ala.*
Ralph B. Snively, *a*	*Lanark, Ill.*
Clark Henry Webster Snyder, Ph.B., *Bucknell University, l*	*Bloomsburg, Pa.*
James Hale Steinman, A.B., *Yale University*	*Lancaster, Pa.*
Homer Sherman Stephens, A.B., *University of Nebraska, l*	*Sidney, Ia.*
Robert Franklin Stewart, *l*	*Webb City, Mo.*
Claudius Ulysses Stone	*Peoria, Ill.*
Albino Zarate SyCip, *l*	*Amoy, China*
Seth Thomas, Ph.B., *State University of Iowa,* A.M., *ibid.*	*Fort Dodge, Ia.*
Albion Blaine Titus	*Paw Paw*
Howard Lloyd Trussell, A.B., *Washington and Jefferson College*	*Claysville, Pa.*
Antona F. Tudeno, *l*	*Jersey Shore, Pa.*

Alan Waters Tull, A.B., *Western Maryland College*	*Kingston, Md.*
Charles Unger	*Carlisle, Ind.*
Joseph Utay	*Dallas, Tex.*
Don Vanderwerp, *l*	*Fremont*
Harry Ellsworth Vernon, *l*	*Millersburg, Ind.*
James Vinson	*Washington, Pa.*
Adam Alexander Walker, A.B.	*Lisbon, N. Y.*
Rholie Jett Ward, A.B., *University of Georgia*	*Powder Springs, Ga.*
Robert McKinney White, B.S., *Washington and Jefferson College*	*New Castle, Pa.*
Harry Harper Wilcoxen, *l*	*Wellsville, O.*
Roy Wilhoit	*Louisville, Ky.*
Alpheus Amos Worcester, *l*	*Ann Arbor*

HOMOEOPATHIC MEDICAL COLLEGE

Lizzie Amanda Hendershott, M.D.	*Middleville*

Summary of Students*

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS

Resident Graduates	162	
Non-Resident Graduates	6	
Completed Undergraduate Course in February, 1909	8	
Undergraduates:		
Candidates for a Degree	1,804	
Not Candidates for a Degree	37—	2,009

DEPARTMENT OF ENGINEERING

Resident Graduates	6	
Graduates Studying *in Absentia*	3	
Undergraduates	1,325—	1,334

DEPARTMENT OF MEDICINE AND SURGERY

Resident Graduates	3	
Fourth Year Students	69	
Third Year Students	87	
Second Year Students	111	
First Year Students	48—	318

DEPARTMENT OF LAW

Third Year Students	223	
Second Year Students	233	
First Year Students	274	
Special Students	79	
Students primarily enrolled in other departments	24—	833

SCHOOL OF PHARMACY

Undergraduates	97—	97

HOMŒOPATHIC MEDICAL COLLEGE

Resident Graduates	3	
Fourth Year Students	17	
Third Year Students	20	
Second Year Students	21	
First Year Students	16—	77

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*Throughout the summaries, in totalling, deductions have been made for names appearing twice in the items added.

COLLEGE OF DENTAL SURGERY

Third Year Students	58	
Second Year Students	86	
First Year Students	72—	216
Net Total, exclusive of Summer Session		4,755

SUMMER SESSION OF 1909

Department of Literature, Science, and the Arts	678	
Department of Engineering	316	
Department of Medicine and Surgery	108	
Department of Law	149	
Homœopathic Medical College	1—	1,224
Grand Total (net)		5,383

TOTAL, INCLUDING THE SUMMER SESSION, AFTER DEDUCTING FOR NAMES COUNTED TWICE

Department of Literature, Science, and the Arts:		
Graduates	362	
Undergraduates	2,107—	2,448
Department of Engineering		1,406
Department of Medicine and Surgery		352
School of Pharmacy		97
Department of Law		930
Homœopathic Medical College		78
College of Dental Surgery		216

SUMMARY BY STATES AND BY DEPARTMENTS

	Lit., Sci. and Arts.	Engineering.	Med. and Surg.	Law.	Pharmacy.	Homœopathic.	Dental.	Summer Session.	Total.
Michigan	1162	796	153	281	48	32	100	661	2832
Ohio	157	89	39	75	8	4	21	91	433
New York	167	138	27	29	14	17	21	84	432
Illinois	90	64	10	77	4	1	5	44	254
Indiana	85	25	10	48	1	1	2	45	191
Pennsylvania	53	25	12	46	2	5	10	46	183
Iowa	30	6	5	28	2	2	2	9	80
Missouri	15	14	4	20	1	—	—	19	64
Colorado	20	6	1	24	3	—	2	9	57
Wisconsin	23	12	2	11	—	2	3	8	55
Kansas	17	8	—	17	—	1	2	11	53
Kentucky	9	10	4	17	2	—	1	15	48
California	8	6	4	20	—	—	1	9	41
Montana	8	9	4	13	1	—	2	7	41
District of Columbia	14	18	1	2	1	1	—	9	40
South Dakota	10	9	6	7	1	1	2	9	39
Massachusetts	12	11	3	2	—	1	1	6	35
Washington	10	4	5	11	—	—	3	2	32
Minnesota	9	3	2	9	2	1	2	5	31
Nebraska	10	5	—	12	—	—	—	5	30
New Jersey	11	6	1	1	—	—	—	5	21
Oregon	4	—	3	15	—	1	—	3	21
Connecticut	5	4	1	3	1	—	3	4	19
Alabama	6	1	1	2	—	—	—	10	16
Arkansas	3	1	—	4	—	—	—	8	15
Mississippi	3	1	—	1	—	—	—	9	14
Tennessee	1	1	1	2	—	1	2	6	14
Texas	4	4	—	3	—	1	—	4	14
Vermont	4	1	2	7	1	—	—	1	14
Maryland	3	3	—	2	—	2	—	5	13
North Dakota	5	2	1	4	—	—	—	3	13
Utah	1	2	—	8	—	—	1	1	13
Oklahoma	2	4	—	6	—	—	—	1	12
Georgia	3	—	1	4	—	—	—	6	11
Idaho	4	—	1	6	—	—	—	1	11
Rhode Island	1	—	2	2	—	—	2	3	9
Porto Rico	—	1	2	—	2	—	3	3	9
Maine	2	3	1	—	—	1	—	1	8
New Mexico	2	3	—	1	—	—	—	3	8
Virginia	—	2	—	—	—	—	1	6	8
Louisiana	1	1	—	—	—	1	—	4	7
South Carolina	1	—	2	—	—	—	—	4	7
Wyoming	3	2	—	1	—	—	—	1	7
Florida	—	1	—	2	1	—	—	2	6
West Virginia	1	—	—	1	—	—	2	3	6
Arizona	1	2	—	1	—	—	—	—	4
Nevada	1	—	1	1	—	—	1	—	4
New Hampshire	2	—	—	1	—	—	—	1	4

	Lit., Sci. and Arts.	Engineering.	Med. and Surg.	Law.	Pharmacy.	Homœopathic.	Dental.	Summer Session.	Total.
North Carolina	—	—	1	—	—	—	1	2	4
Philippine Islands	1	2	—	—	—	—	—	—	3
Hawaii	—	—	—	2	—	—	—	—	2
Ontario	6	4	1	1	—	1	9	6	25
China	4	3	—	1	—	—	—	7	11
Japan	3	1	2	—	—	—	3	3	9
Germany	3	—	1	—	—	—	1	2	6
Cuba	—	2	—	—	—	—	—	2	3
England	1	1	—	—	—	—	—	1	3
India	—	3	—	—	—	—	—	—	3
Mexico	1	2	—	—	—	—	—	1	3
Peru	2	1	—	—	—	—	—	—	3
Argentina	—	1	—	—	—	—	1	—	2
British Columbia	1	—	—	1	—	—	—	1	2
British Guiana	1	—	1	—	—	—	—	—	2
Colombia	1	1	—	—	—	—	—	1	2
Holland	—	1	—	—	—	—	1	—	2
Russia	—	1	—	—	—	—	1	—	2
South Africa	1	—	—	—	—	—	1	—	2
Turkey	—	—	—	—	—	—	2	—	2
West Indies	—	2	—	—	—	—	—	—	2
Alberta	—	—	—	1	—	—	—	1	1
Brazil	—	1	—	—	—	—	—	1	1
Chili	—	1	—	—	—	—	—	—	1
Costa Rica	—	—	—	—	1	—	—	1	1
New Brunswick	1	—	—	—	—	—	—	—	1
Persia	—	—	—	—	1	—	—	—	1
New Zealand	—	1	—	—	—	—	—	—	1
Quebec	—	1	—	—	—	—	—	—	1
Queensland	—	1	—	—	—	—	—	1	1
Scotland	—	1	—	—	—	—	—	1	1
Switzerland	—	—	—	—	—	—	1	1	1
Total	2009	1334	318	833	97	77	216	1224	5383

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HORATIO N. CHUTE	'72	1912
EDWARD W. PENDLETON	'72	1913
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